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ABSTRACT

The articles in this collection focus on reading, learning assistance, developmental education, and tutorial services at the college level. Topics of the 28 articles include the following: (1) a reassessment of the state of learning assistance; (2) a reaffirmation of the role of developmental instructors; (3) human brain research, cognitive development, and adult learning; (4) mapping learning styles in the classroom; (5) reducing student writing anxiety; (6) notetaking techniques for deaf college students; (7) improving student performance through questioning techniques; (8) sharing in the learning lab; (9) perceptions of the reading process and levels of reading achievement; (10) the effects of computer assisted instruction in a community college; (11) schema instantiation and its effect on comprehension and recall of adult proficient and nonproficient readers; (12) choosing appropriate parameters of tutor intervention in student writing; (13) a solution to the problem of student athletes and literacy; (14) integrating study skills into content courses; (15) a paradigm for content mastery; (16) specific vocabulary needs of the disciplines; (17) survival skills in a community college; (18) training students to use the SQ3R method; (19) learning center courses in reading, writing, and time management for faculty and staff; (20) suggestions for evaluation of learning assistance; and (21) the need for volunteers in the learning assistance program. (HTH)

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LEARNING ASSISTANCE
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VOLUME XIV

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PROCEEDINGS OF THE FOURTEENTH ANNUAL CONFERENCE OF THE

Theme:
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PREFACE

This volume presents articles originally shared at the annual conference of the Western College Reading Association. Topics range from schema theory and brain research to program guidelines and evaluation practice. They include literacy activities for athletes, validity results for the *Minnesota Reading Assessment*, implementation strategies for computer assisted instruction, research commentaries on writing anxiety, and notetaking techniques for deaf students. Although the papers span many academic areas and fields of study, they are bound in common by the underlying concern for improving student learning. This collection of twenty-seven papers was selected from thirty-five manuscripts by the *Proceedings* editorial team for your reading. Hopefully, you will find this anthology informative, useful, and fun.

Fifteenth Annual Conference
April 1-4, 1982
San Diego, California

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REASSESSMENT

Albert A. Canfield
Humanies and Humanies Media

I am not here to shake you up, or shape you up, but to share. Much of what I'm about to say will reflect my peculiar experiences in and around education, with particular emphasis upon two comparatively recent experiences. Experiences which, incidently, enhanced my awareness of who you are and the challenges you face. To help you put me in perspective, I want to share those experiences with you.

Last summer I had the opportunity to spend a couple of days working with a group of about 40 developmental educators at a month long Institute at Appalachian State University. In that brief period of two days, that group of people provided me with a dramatic example of what a caring person is like.

Representing colleges from many different regions of the country, they quickly demonstrated some remarkable common qualities. They were bright, enthusiastic, good-natured, responsive, and open. More so than any other group with whom I had worked. Those qualities were delightful. But what I found to be truly moving was the deep compassion they evidenced—not only for their students, but for one another and for me.

In the formal seminar setting, I learned about some of the challenges they faced. Challenges of finding ways of helping students succeed where the students had consistently failed before.

In our all too brief informal discussions, I learned of other challenges. While their dedication to meeting the challenge of facilitating learning was clear, it was also clear that they were making progress establishing an improved level of understanding and acceptance in the academic communities of which they were a part.

In one way, it is unfortunate that this apparent increased level of acceptance and support comes at a time when enrollments are declining and financial resources for many collegial institutions are experiencing significant cuts. Whether the apparent increased level of acceptance and support for programs such as yours is real or fancied, I cannot say. But if the increasing support is real, the skeptics can avow that this surge of concern is born less

from an awakened sense of institutional humanitarism than from fiscal concerns about enrollments and associated drops in institutional operating revenues.

While such opportunities for skeptical interpretations of the new concern provides rich possibilities for debate and conjecture, the situation I encountered convinced me that, for whatever reasons, "You've come a long way Person."

I applaud your work as it reflects education's primary functions as essentially student and learning centered. Further, I believe that those obligations extend to every student we admit and from whom or for whom we accept fees and that all students "belong there." Thank heavens for the caring people like those I met at Appalachian State who accept the difficult as a professional opportunity and not as a career annoyance.

The second event occurred at a college in Georgia. A teacher invited me to attend a class in developmental English. In that brief 50 minute period, I came face-to-face with the students and the kinds of problems you encounter daily. If I had to choose a single word to summarize my reactions to that class the word would be "frustration." The instructor experienced it, the students experienced it, and I experienced it. You already know the frustrations of the teacher and the student so I won't comment on them. I will, however, share the basis of my own frustrations since they are related to my notions about re-assessment. First, however, let me make some observations.

The strongly humanistic theme of the Learning Assistance or developmental educator has served you well. Your caring and contributions have started the movement of your programs from basements and "out" buildings toward the campus mainstream. In addition, as your professional competence becomes recognized, you are strengthening a professional specialty. Your numbers are growing and budgetary acceptance is growing and that's a blessing whether it's born of humanism *or* economics.

Your content and methodological concerns, as expressed, for example, in this year's conference, continue to move you toward more sophisticated approaches to the teaching/learning process. The concerns for what's and how's in this years program, by my quick count, account for about six of every eight papers on the program.

Your dogged determinism to prevail against the odds and to carry your theme to others has served you well. You seem to have identified, recruited, and trained the kinds of people who can do the work. You are eager to share. You remain enthused and excited about improving, doing better, learning more, sharing fully. You seemed determined to become the epitome of what an educator can be and I honestly and sincerely believe that you will be.

My charge here, under the theme of "reassessment" is to more or less blindly poke about the edges of your field and look for the might-be's and could-be's. A few thoughts occur to me, thoughts that I feel comfortable sharing with you.

First, my own personal perceptions of you are being verified in early

findings on our *Instructional Styles Inventory*. Those findings clearly indicate that you typically assume a great deal of responsibility for providing student learning. Given the option of putting the locus of responsibility for learning on the teacher — or on the learner — you indicate that you accept more responsibility for student learning than any other faculty group on which we have data.

This seems to be working for you. One study at a community college indicated that low expectance students as measured on our *L.S.I.* (students who predict that they will not do well) achieve more under a high responsibility teacher than under one who puts learning responsibilities on the learner.

But in this apparent strength, I sense two dangers.

One for the teacher. The acceptance of major responsibilities for what one cannot control but only hope to influence, may push you to unattainable objectives and subsequent feelings of disappointment and failure.

In the last four years I have worked with two educational systems who were charged with responsibilities for working with the mentally and emotionally handicapped. In both systems, the problem of teacher "burn out" was of major concern. After a few years of the most extraordinary teaching challenges, simply marvelous human beings were running out of wit, ingenuity, patience, confidence, and energy. I sometimes wish there was a way to emulate the surgeons who, in jest, I accuse of covering everything except the part to be cut in order to blot out the idea that they are operating on a person and believe that they are really only cutting on some organ.

Such an aloofness from the total human would seem contrary to the comparisons upon which your profession is being built. But — a word of caution. It would be dreadful if unrealistic goals or dependence upon a personal charisma led to "burn out" in your field — we need you so badly. Second, there is a danger for the learner. In consuming so much responsibility ourselves, we may leave little for the learner and inadvertently promote dependence and perpetuate what research suggests is an external motivation already in place.

In most discussions with you a great concern quickly develops about helping students become independent internally motivated people — achievers if you will. McClelland's research on achievement motivation suggests that highly competent and caring achieving parents tend to produce dependent children — possibly because they are so good at making decisions they relieve their children of that difficulty. To move our concerns to sound practice — we need a great deal of research on how to help the deterministic externally motivated non-achiever become an internally motivated achiever.

I sense a substantial problem here if we try to use conventional approaches. Your students appear to have developed the art of faking to a high level — faking themselves and faking others. Getting through this shell is going to be done with delicacy and difficulty. However, I do feel that your field owes it to itself to systematically approach this issue.

There is, I believe, an opportunity to energize your concerns about

students into somewhat different kinds of diagnostics that have been common in the past. While maintaining research on the what's and how's, we should extend our research on the who's. There is an emerging area, particularly parallel to the developmental educator's values and interests. Variously called Aptitude, or Trait, or Characteristic-Treatment Interaction, it seems particularly likely to yield increased teaching/learning effectiveness.

The objectives of characteristic-treatment interaction are to establish generalizations about how the characteristics of the student interact with the characteristics of the instructor, the instructional process, and the instructional environment. Research on this interaction goes back at least to the forties, and probably long before. But more importantly, research in this field has increased dramatically in the past five to ten years.

In essence, C-T-I research starts with a diagnostic process — trying to learn something reliable about the learner — and to relate those findings to learner performance in an instructional environment. Encouraging results have been obtained in a variety of settings and a surprising level of enthusiastic interest is developing.

Research in characteristic-treatment interaction or C-T-I, is in two general areas: cognitive and affective. Research in the cognitive area looks at how people assimilate and process information. Research in the affective area looks at people's motivations, interests, preferences, values, self-concepts, expectations, etc.

Several diagnostic tools have been developed and are in use in one or both of these two major research areas. Workshops and seminars, which unfortunately are typically dedicated to one set of concepts, are widely available and often strongly promoted. A partial list includes Spence's anxiety scale, the Nowicki Strickland locus of control measure, the Dunn's learning style instrument, the Kolb learning style instrument, Joe Hill s cognitive mapping, the *Myers-Briggs Type Indicator*, and my own instruments, the *Canfield Learning Styles* and *Instructional Styles Inventories*.

This interest in learning more about how instructional situations and processes interact with learner characteristics has had greatest acceptance in developmental education, student counseling, and in the technical and professional programs of our schools and colleges. Despite rapidly expanding research and interest, we've only just begun. Current diagnostic tools will be revised and expanded as we learn from our successes and our disappointments.

In addition, the whole area of learner motivation has been barely tapped. Currently, a few of your associates are helping me collect data on an *Education Attitude Inventory* which will, hopefully, provide the instructor with useful insights about where the student is coming from.

And herein lies the frustration I felt in that developmental English classroom. Try as I could, I simply could not conceive — let alone understand — where those students were coming from. I could not imagine, with any substance, what was important to them, why it was important to them, why it

was that they differed in past achievement, or what was going on in their minds while a caring professional went "all out" to help them learn. With those feelings came the realization that in spite of all we can learn about what we teach, how we teach it, why we teach it, and who teaches it best — that until we know all the pertinent facts about the learner—the other who in the equation — we'll never be more than half done.

If we are to optimize the utilization of our resources in producing learning, we could take some small piece of our caring and a very large piece of our inquisitiveness and apply them to finding out just what it is about that learner that will enable us to provide the experiences that promote the most student learning. There is much for us to discover.

Third, and finally, I suspect that we must become more tolerant of small sample research. Education as a field, is not known for its absolute truths. Most of use who do research are delighted with a correlation of .45 — if it's statistically significant at the point one level.

Most of us have a disposition to find or invent a new, novel, or different approach and to try it on a group of students. Unfortunately we often embrace an assumption — an assumption that all students in the group and all teachers of such groups are the same. We know those assumptions to be false.

We might well try to become more tolerant of single case or small sample observations — circumstances that stimulate the generation of hypothesis and notions about "How come?" We might well focus on developing reliable means of identifying the factors at work in these situations—in considerable detail — and searching for hypothesis to share and to test. I strongly urge more practitioner research, in the practitioner environment, on the practitioner's clients. As we learn about the inter-actions of human and environmental qualities and circumstances, we may move toward adoptive or prescriptive teacher role model.

In closing, I am most concerned that you might misunderstand the reassessment remarks. I am really impressed with what you're doing and frankly, I think you're doing one heck of a job.

My observations are sincere and honest expressions of what my experience and nature lead me to sense as I have poked around the edges of your field.

There are many of us, outside your ranks, who maintain fervent hopes that the qualities you exude will endure, and that you will multiply those qualities in your marvelously understanding way throughout the institution.

Hopefully — no, prayerfully, someday everyone in education will perceive that all education is developmental, that all teaching is learning assistance, and—past records notwithstanding—all students are humans and all humans are students.

Accept it or not, I think those hopes and dreams have their likeliest fulfillment in you and the burden of those hopes and dreams lies not so much on you as on the hopes and dreams of which you're made.

AFFIRMATION

Irwin Joffe
Phoenix College

We've come a long way from the days when the idea of teaching reading and study skills on a college campus wasn't even considered to be a discussable topic. After all college students know how to read. They know how to study. They are self disciplined, self motivated. They are future leaders. I've heard those very comments, many times over, when I tried to explain to college administrators why it was important to have a reading and study skills program at their respective institutions. Just twenty-five years ago, few colleges did anything, although Harvard University did offer training in speed reading techniques. New York University had a major program going, but there wasn't much more than that. As recently as twelve or thirteen years ago (just at about the time WCRA was born) very little was done in survival skills. Since then, however, there has been an explosion of lesser prepared students entering our colleges. College teachers of content area subjects didn't really know what to do. For monetary reasons or in order not to tarnish an image as an institution that services the community, they didn't want to turn these students away. Also, because so many of these students were women and minorities, colleges didn't want to be put into a position of being told that they were being discriminatory. So, what to do? Some teachers lowered standards, required less work, looked the other way. We reading teachers, however, rolled up our sleeves and took on the challenge and, as a result, we made great strides in preparing people for college work and in helping them through college.

We developed expertise in several areas. We became psychologists and helped them improve self image—an absolute necessity for college survival. We helped students to develop reading and study skills and then to apply these skills to their college textbooks—to the philosophy text; to the history text; to their anatomy and psysiology textbooks. Reading/learning centers sprung up — initiated for the most part by reading/study skills oriented people. There was also an explosion of textbooks. In 1965, you could almost count on ten fingers, the number of skill development textbooks on the market. Need I say anything about the barrage of reading materials cur-

rently available? Also, college teachers in this area of the country sought out others with similar problems and, realizing that there really wasn't any professional organization to help us, organized our own. I still remember an evening, about thirteen years ago, when just about the entire membership of WCRA had dinner together in San Diego, and then met in a small room to discuss our common needs and how to cope with them.

Too often comments are made about what a poor job we do—after all, it is said, how come so many people, many of them college graduates, can't read well? How about taking a look at what a great job we have done. Let's look at the things we've accomplished:

1. We have helped people get college degrees, people who have ranged all the way from illiterates to people who were reading on marginal high school levels.
2. We've helped to smooth the orientation process for an entire raft of people for whom going to college was a frightening thought. We've helped scores of people who never dreamed that they could and would earn a college degree.
3. We've helped to lower attrition rates substantially. This has probably saved millions of dollars for college districts because they receive state funds that depend on attendance. Who knows how much money it has saved students who paid tuition and registration fees and purchased textbooks, and who didn't withdraw from courses because, as a result of the reading/learning skills developed, they could cope with the academic requirements of the classroom.
4. We've lifted the self image of countless numbers of students. And I won't even talk about the talents and human resources that we prevented from being wasted.
5. We did ourselves some good, too. We finally began to establish ourselves as service people, helping students to achieve academic success and we have earned the respect of colleagues who now seek out our counsel and help. I remember when some of us, hidden in obscure rooms at the end of campus and isolated from our colleagues, taught a few remedial classes to students on academic probation.

We must look forward to continued successes. We should take advantage of technological advances and help find new innovative ways of using them. We can be the leaders in working out approaches to the use of telephone teaching, home-school TV, the use of biofeedback as a way of providing positive reinforcement and the use of biofeedback to help in developing speed readers by lessening or even eliminating subvocalizing. I haven't even mentioned the multitudinous ways in which computers can help us. I think that we should be at the forefront of these innovations. I'd like to see WCRA form a committee for developing innovative teaching strategies. This committee could take on the task of exploring the nature of the progeny of the marriage

of technology and teaching. They might also be charged with finding and/or developing new ways to meet this exciting challenge. They might also act as a depository and accumulate new, innovative, exciting teaching strategies that result from using technology and instruction. The point is that we reading/study skills people realize that we just simply can't afford a continuation of the high education casualty rate in our general population. To paraphrase a well known statement, we are not taking it any more. We're doing something about it and we're going to continue to do it better and better and we will use all resources at our disposal — human and technological.

I am not suggesting that we depend primarily on technology to accomplish our task. I an not what you might call a "machine" person. I do want to affirm our human resources here today. It is, after all, what we humans do with the technological advances that make them meaningful & useful. The hardware does only what we tell it to, nothing more. But it can help us to reach our goals more easily and possibly with more success.

Education has always been slashed first when budget tightening demanded cutbacks. Cutbacks in educational expenditures at the college level often seem to affect the kinds of programs that we are involved in. Many college budget cutters seem to forget what we have done and regress to the worn out concept that college is for students who have good entry skills. After all, why do we need a reading/study skills program anyway? Maybe getting rid of the one on our campus is the least painful way to cut expenses. What a short-sighted way of thinking! How forgetful of the fact that we have prevented mass attrition and have prevented lowered standards! It's like the cab driver who decides to sell his cab in order to pay the rent: he accomplishes his immediate goal and is then put out of business.

We, as a professional education organization and as individuals, need to fight. We must remind our planners and budget cutters what we have done to keep students in school, to keep standards up, and, most of all, to protect human resources. We have helped people to reach, or at least come closer to their potential and, as far as I am concerned, there isn't enough money in the world to pay for that. I think we need to continually remind our administrators of what we have done. We need to affirm with a vengeance. Fill them with statistical information about the progress of students that we have worked with. Compile information about the attrition rates of our students compared to the rest of the student population (and never let them forget that our students are the ones most expected to drop classes or withdraw from school). Enlist the aid of your students. Help them to realize that the continuation of the program may depend upon letting administrators know how they feel about the reading courses, or the reading/study skills/learning center. Letters expressing this point can be very helpful when cost cutting time comes around. Also, all of this information gives administrators the ammunition they need to defend your program.

A word needs to be said here about lowering standards. We have been led to believe that we are being helpful if we accept second best. We must have

enough stamina, enough self-confidence in our ability to teach requisite skills and enough self-respect to insist that students turn themselves around and become self motivated, self-respecting citizens.

I think that we need to affirm ourselves as service personnel offering service to students, to colleagues, to the administration and to the community. What are the various services that we perform in these roles? Lets consider them one at a time:

1. Service to students. We offer students training in the various reading & study skills needed for success in their college content area courses. We help them develop expertise in finding key thoughts in paragraphs, in understanding the relationships of those thoughts to the rest of the paragraph, in understanding graphic materials such as maps, charts, graphs, and tables, in learning to read faster, in learning how to study, in developing or improving vocabulary skills, in remembering what they read, etc. We help them with the skills they need such as test taking techniques, note taking, and learning how to cope with all kinds of instructors rather than dropping courses. We help them to build a better self image, giving them more self respect which in turn makes it easier for them to cope with the stresses and strains of being a student and which allows them to like themselves better. At Phoenix College, we have offered special workshops to help nursing students become more test wise just before taking their state board exams. We've offered special classes for students in the medical laboratory technician program to show them how to remember significant laboratory test results. Special tailor made courses for students in the administration of justice program and in medical terminology were also given.

   Possibly because of all this help, students sometimes become overly dependent upon you and you have to wean them from that dependence. Sometimes you are the wall, the rock, the stability that stands between their success and being washed out of the program. Think of the students that have come to you unable to handle the reading assignments they were given. Perhaps they had a word attack problem or an inability to cope with the language of academia and you helped them and they passed the course and they moved on from there. With your sense of having done a really good job, do you *really* have any problem affirming your own self image and what you do for college students?
2. Service to colleagues. We serve our colleagues by helping their students do a better job of coping with classwork. By helping to lower attrition rates you have made your colleagues' jobs more stable. You give help in the selection of books and reading materials.

   On the Phoenix College campus, for example, social science teachers asked me to determine the readability levels of two textbooks, which they are considering for adoptions in history classes. I did this for them, and the more readable text was the one chosen. In addition, I've given a

workshop to content area teachers on the application of memory skills to the classroom which was very well received. You need to make it known that you are ready and willing to help.

3. Service to administration. The obvious service, of course, has already been mentioned — helping to lower attrition rates and thus keeping students and money on the campus. You can also be a resource person by informing your administrator of recent research and programs that are applicable to your campus. When presenting statistical information, present recommendations for improving your usefulness and enlist your administrator's aid in implementing these recommendations.
4. Service to the community. Special tailor made programs in speed reading for business and industry in which you meet the unique reading needs of particular employees, from the desk clerk to the top executive, is one way to be of service. Readability service for business and industry is another important program. Some years ago, for example, I was called upon to redo instructional manuals for a firm whose employees had difficulty understanding these manuals. I also do memory improvement workshops and seminars for business and professional groups. These services have been extremely helpful. Recently, at Phoenix College, we were called in to help nurses from the Phillipines who were expected to have difficulty in passing Arizona State Nursing Boards, not because of their lack of knowledge of nursing, but because they had limited language and vocabulary and reading and test taking abilities. The results were very satisfactory, and we have been asked to extend this program to other groups of foreign students.

   Another aspect of community service is the speaker's bureau. By engaging in such discourse, you affirm your value and contribute to the welfare of the community.

   Offering non credit courses in phonics and word attack skills as part of an adult basic education program is another service that can be helpful. Also, courses in speed reading or recreational reading can help other segments of the general population. At Phoenix College, we have an active, highly visible senior adult program and we also offer a special course in memory improvement to blind students. The satisfaction gained from that course provided a great deal of affirmation.

So reading and learning and study skills experts, stand up and take a bow. You're doing more than you ever did before and you're doing it successfully. You are teaching more people more things because you are not afraid to recognize the felt, expressed needs of your students and work out ways to meet those needs. You took on the challenges of masses of students during the seventies, some with very limited reading and study skills levels. You made good students of most of them. You saw the need to help students with survival skills problems and you took that challenge on, too. Without you, it is doubtful whether colleges would have the student population they have

today. That means that you have truly given equal opportunity for education to all people. In other words, you are serving students and colleagues and administrators and the community at large. You are right in there, shoulder to shoulder, with your sleeves rolled up.

So applaud yourselves and keep up the good work. I intend to and I certainly hope you will.

HUMAN BRAIN RESEARCH, COGNITIVE DEVELOPMENT AND ADULT LEARNING: AN EMERGING TRILOGY

Mary Dimon
El Camino College

What is a brain?

The discovery that willed action does not take place in any particular brain area was tantamount to uncovering the secret of flight. It provided the rationale for joining mind and brain described by Schopenhauer as "the world knot," just as the Wright brothers joined an earth-bound people to the space around them. The relationship between mind and brain will never be fully explained by any single academic discipline; e.g., psychology, genetics, neurology, education, biology, philosophy, or anthropology, but by the genius and synergy of many.

Pribram's[16] hologram, a theoretical model for brain functioning, has produced the current emphasis on process and, at last, has diverted attention away from a "fixation" on right/left brain excursions. J. Z. Young[21] describes the brain as operating in certain organized ways, which he calls programs. The action of these programs constitutes what we call the mind of a person.

The mention of a program immediately conjures up the image of a computer; Young, however, does not equate a brain program with that image. Instead, he stresses that nerve cells are *not* all alike. The differences between them make up the coding system by which brains process information. It is this difference which makes an analogy between brain and computer or telephone erroneous. The brain contains fifty thousand million cells; each of these has many parts and connections, all of which participate in the processing of information. Comparing this phenomenon to fifty thousand million writers who send letters to each other simultaneously to solve the world problems of food supply, population and politics more nearly approximates what the brain does than the data processing accomplished by computers.

Luria[13] describes systems of functions and relates them to large areas of the brain. He refers to (1) the attention block, located in the upper brain stem, reticular formation, and to some degree in the limbic cortex and hippocamus, as an interdependent division responsible for arousal. Next, he identifies (2) the processing block, which encompasses the occipital, parietal and front-

temporal regions of the cortex. It is responsible for integrating information, input, recording and storage. The third block (3) is located in the frontal lobes and does the planning.

Dr. Paul MacLean's theory has been described by Mary Long[11] in an issue of *Science Digest*. Three brain formations, partly independent, partly interactive, join in what MacLean terms a "tri-une" brain. The first brain structure is responsible for mastery of our day-to-day routines — eating, dressing, maintaining our bodies. MacLean refers to them as the R-complex, a function housed in the reptilian brain. The R-complex is like a gland and contains dopamine, cholinesterase, serotin, endorphins and opiates. We also possess a limbic brain, which is responsible for our emotions, sense of family feeling and inclination to playful behavior. The neocortex houses our intellect, imagination, ability to calculate and discriminate.

An English pediatrician, John Lorber[12], describes a student at Sheffield University, England, as a young man who has gained a first-class honors degree in math, is socially normal, has a 126 I.Q., yet has only a thin layer of mantle measuring a millimeter or so instead of the 4.5 centimeter thickness of brain tissue found in normal craniums. This student's cranium is filled mainly with fluid. Lorber has performed a long series of systematic brain scannings and gathered a remarkable set of data with hydrocephalics as subjects. There have been several speculative explanations for Lorber's findings. One is that the quality of spare capacity is an important attribute of the human brain; it can relocate function. Another explanation is still not accepted widely because it contradicts a hallowed concept of neurobiology, that cells in the central nervous system are unable to repair themselves. If a child's recovery enables the doctor to see complete restoration of overall brain structure, then there must be regeneration of brain substance in some sense. A final opinion asks the reader to downgrade the predominance of the cerebral cortex and re- sign it to the deep structure of the brain.

The brain develops

Humans are acutely attentive to the actions of other people. Babies first smile at about two months, and the human face is the most important object to elicit a smile. Though blind children smile, cry, laugh, show anger and sulk as babies, these actions decrease with age. It appears that humans are born with certain capabilities for communication of emotional attitudes. Bruner[3] lists five competencies that will be acquired by the end of the first year — feeding, attending, perceiving, manipulating and interacting with others. The neurons able to perform these tasks are also capable of change in order to adapt so that these skills mature flexibly, suiting the conditions of a particular environment. These early behaviors form the core of the brain-program of action. They can be combined and recombined in new ways.

Cognition and emotion are never wholly separate. The child's primary interest is in meeting his own emotional and physical needs, which, in turn, may be a requirement for maturation; "[B]efore and beyond the three R's

exists a human being who is not partly cognitive and partly emotional but in being and substance is both of these all of the time and indivisibly."[18]

By the age of seven the child is capable of what Piaget calls concrete operations. This shift to an awareness of a self reacting to a real world appears for the first time. According to Piaget, conflict with other minds, exchange and opposition produces thought which comes to be conscious of its own aims and tendencies.[15] A child's experiences with adults and other children nurtures this shift.

The infant regularly discards unproductive motions until the brain has selected useful ones. The young child continues to add to this useful store of knowledge even though incapable of indirect or reversal thinking. Development is gradual; undergeneralization is replaced by generalizing, a less safe technique, so at first meals are food, but a chocolate bar is not. Later, both are. The experience of the child determines development, even though nerve cells are laid down before birth. These cells are not in their final form and will choose a general direction from many possibilities. Young[21] contends that, without suitable experience, many of the nerve cells will not develop at all. This idea is supported by Marian Diamond at Berkeley[5], who found that the greatest cell development has occurred in rats *before* they became adults.

The brain and language

Each child has a deep genetically-transmitted language potential. The brain perceives speech patterns so the learner doesn't learn language rules in the way one learns to add or subtract in school. Children become talkers without being taught in any ordered, planned way. Since we know that the brain is constantly active, and was born motivated to learn in its own way, why do we insist on putting children into schools which encourage passive students and rote learning? Leslie Hart[9] offers two explanations: learning right answers has become ingrained, despite the fact that we have outgrown the need for this type of instruction, and many teaching methods were born in a behaviorist's laboratory where the study of the brain is avoided.

Luria and Yudovich[14] showed that children must talk to learn best. They must verbalize what they are doing; communication is a true learning tool at any age.

Das and Molloy[4] have offered a viable alternative to Piaget's stage theory and to the standard I.Q. model. In this process model coding is divided into two modes of processing information — simultaneous synthesis and successive synthesis. Each can be performed on visual and auditory tasks, and since coding is viewed as a central process, both may be presented at the same time. These syntheses are related to language and reading functions. Simultaneous processing is implicated in decoding skills. It is essential that students be taught processing strategies which they then can transfer to a specific content such as spelling.

In 1980, Atuhiro Sibatani[20] introduced the startling hypothesis of To-

danliu Tsonoda, who asserts that language shapes the neurophysiological pathways of the brain, and that the language one learns as a child influences the way in which the brain's right and left hemispheres develop their special talents. Tsunoda was studying speech-damaged people who might be able to transfer language processing to a healthy part of the brain. The Japanese, he found, process far more sounds in only one hemisphere, the left. Another difference from Westerners was the processing of emotion in the dominant hemisphere. Since comparisons were made with the blind and with Japanese raised in Western countries, the researcher concludes that listening and speaking the Japanese language account for the switch.

Recent comparisons of bilinguals to monolinguals reveal a number of areas where these two groups differ in the manner in which they process language and in their structuring of reality. Beryl Benderly[1] expounds on the work of six researchers in this field. Each finding provides insight into the flexible, adaptable, and elusive properties of language processing. The scales are tipped in favor of the bilingual who appears to be better able to distinguish figure from ground, and auditory from visual cues; who is more field dependent, more sensitive to a variety of input cues, and more adept in seeking out rules. Bilinguals who learn their second language early differ in processing it from those who learn it later.

The brain and adult learning

Sex differences in brain structure and function continue to enrich the literature; however, this aspect of brain research will only be cited in order to suggest some possible changes in adult instruction.

Essentially, the male brain is laterally differentiated and highly structured, whereas the female's is symmetrically organized and less tightly structured. Jo Durden-Smith's analysis of this literature[6] implies that different approaches and diverse subject content must be provided for males and females. Materials which provide context, have high interest, require fine sound discrimination, but which lack information incidental to the task, are more appropriate for the women in our classes. In contrast, materials which contain visuals, are narrowly focused, provide details, but lack context will appeal to the men.

Dr. Restak's book, *The Brain*[17], discusses the fine points of this topic. He maintains that psychological research indicates these brain differences are innate, biologically determined and resistant to change. In some instances, women's use of words to solve spatial problems results in slow, incorrect or absent responses. These findings strongly suggest a drastic change in materials, instructional strategies and concept presentation for all subjects containing mathematics.

As the mystery of the brain begins to unfold, it behooves teachers to experiment with innovative approaches for teaching adults, approaches based on development, known functions and language processing. The concept of brain-compatible teaching is explored by Leslie Hart[8] who discusses

five specific considerations: (1) since the neocortex "shuts down" under pressure or threat, the learner must feel at ease and secure; (2) talking is learning; (3) students need to manipulate materials in their own way and at their own pace; (4) dealing with reality is complex and requires pattern extraction, so learning will prove more productive when students deal with real problems and real objects; (5) students need encouragement to use their brains in creative, intuitive and pattern-detecting ways.

Research on memory motivated Schmeck[19] to recommend that students indulge in what he terms elaborative processing of material. His group compiled 121 activities college students could perform while studying. When five hundred students were asked to respond to these activities, it was found that the successful students were thinking deeply, elaborating (fitting new materials into old frameworks) and generally spending more time contemplating the material and less time repeating aspects of it. Classroom application of deep-processing methods should also produce achieving students.

In the textbook domain, Michael Brezin's[2] paper on cognitive monitoring offers several related ideas one might consider when choosing or writing a text. Some of these include picture-generated, high-imagery tests; the use of original, rather than correct response questions; and the provision of a variety of cues from which students may choose.

Why the brain?

If our present knowledge of the brain is so limited, do teachers take unnecessary risks when they design instruction around ideas still in the speculative stage? Howard Gardner[7] warns that current packaging of human-brain research threatens to reveal more about academic huckstering than about neurological function.

An approach which blends what is known about the development of the intellect with what has proven to be successful in many classrooms and with some of the ideas presented as a result of brain research will yield the ingredients for a new direction in adult learning. A small risk is part of any imaginative teaching. Such brain-related assertions include the following: our brains select according to experiential inputs; talking and learning are complementary; brains attend, process and plan in definite ways; cognition and emotion cannot be separated; language processing is a key to learning; brains contain an innate tendency to communicate — these may merely bend the "classroom pointer" toward a fresh attack on current learning problems.

Dr. Arthur Samuel, an IBM computer scientist[10], discovered that computers, like people, work better and learn faster when they are motivated. He programmed in "the will to win," by forcing the computer to try harder and think out more moves in advance. He noted that the neuron, or brain cell, has one output but many inputs which connect it to thousands of other neurons. The connections between neurons explain much of the power and variety of

the thought process. The study of the brain is only one input in a world where infinite numbers are possible, but it may contribute enormously to the richness of human thought.

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MAPPING LEARNING STYLES IN THE CLASSROOM

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Cognitive style is a value-free concept which addresses preference and behavior but does not apply to ability or achievement.[1] In the teaching-learning process, cognitive style speaks to how an individual learns, how a teacher teaches, and how materials portray information. It helps clarify instructional options, even as to who adapts, the teacher or the learner.[2]

The purpose of this paper is to present an introduction to mapping learning, teaching and material styles, and to educational uses of maps. The focus will be on the Modified Hill Model as developed for the community college student.[1]

Cognitive mapping

Cognitive mapping with the Modified Hill begins with an inventory of 224 statements responsed to "Usually," "Sometimes," or "Rarely," which can be completed by a college student in about forty minutes. Responses are tabulated to form the map, a listing of the twenty-eight elements sampled (Figure 1), with a score of *Major, Minor* or *Negligible* for each. A *Major* indicates a preference for using an element in processing information; a *Minor* suggests the element is usable but not preferred; a *Negligible* suggests an inability to use the element.

As the map is only as useful as the responses are accurate, the responder is given the opportunity to agree or disagree with the results for each element. Further, because people who view themselves romantically may answer as they wish to be rather than as they are, an interview using selected questions, and direct observations, may be used to augment the written inventory.

Map analysis is best accomplished by seeing the three groups of twenty-eight elements in combination and as complimentary, one to another. The map is not the territory; it is an indication of how to traverse the territory.

Gaining and perceiving information. Information may be received, perceived and filtered through words and numbers and sensations and im-

pressions. The first four map elements indicate the degree of preference an individual has for receiving words and numbers visually and for receiving them auditorially. A *Major Visual* learner should prefer a course in which the text is the primary source of information, while a *Major Auditory* learner should prefer a lecture course.

The expectation that all *Majors* will succeed in preferred learning style, and conversely all *Negligibles* will fail, cannot be accepted with confidence. A *Major* in an element does not assure the knowledge needed to use it, nor the willingness to use it. An *Auditory Major* who has few note-taking skills, who cannot sort main ideas from examples and digressions in a lecture, will likely experience more difficulty learning from a lecture than the map might indicate. A student who is convinced learning can be offered in only one style may reject learning offered in another. There is also danger that total match of style in learning may so reduce challenge as to negate learning. One use of the map is as a diagnostic tool to separate those who need skill development from those who need an alternative learning strategy.

The second set of elements in this group bespeak the degree to which a learner uses the five senses and immediate internal/external environment cues to gather and process information. Use of the five senses may either distract from or add to a task. A kinesthetically inclined student may need a lab rather than a demonstration, and may benefit from taking copious notes even if they are never used again. A *Quality Auditory* learner may use tapes profitably only if they are of good fidelity.

Internal/External environment cues are influences which affect how an individual perceives and filters information. The degree to which a learner has empathy for others, picks up body language, has an awareness of the beauty of ideas or a well-turned phrase, and attaches importance to time, colors and perception and sets a base for accepting or rejecting information.

Problem solving environment. Problem solving environment indicates where the learner seeks help in decision making and information filtering: *Associates* (A), *Family/Authority Figures* (F), or *Self* (I). The three items in this group should be viewed together, for it is not unlikely to find a *Major* in more than one element, or even a *Minor* in all. Conceptual neutrality, not having a distinctive style, can be seen either as a disadvantage, or as an advantage indicating flexibility.

Major A's come alive in the dynamics of group interaction, and can be expected to share their maps and freely discuss the implications. *Major F*'s, who prefer working under direction of an authority figure, can be expected to seek direct explanation of their own maps, and an instructor prepared plan for using the finding. *Major I*'s, on the other hand, prefer working alone, and would likely seek only as much explanation of their maps as needed to do an analysis and draw up an operational use plan.

Thinking styles. The final group of components is intriguing for its attempts to get at the workings of the mind. These style elements which describe the preferred thought processes for perceiving, organizing and relat-

ing information are *Magnitude* (M), *Difference* (D), *Relationship* (R), *Appraisal* (L), and *Deductive* (K).

The *M* style is one of "by the rules" thinking. *M*'s seem to prefer defining, categorizing and operating by policy, standard, principle and tradition.

The second and third styles of *D* and *R* are similar, though opposite. *D*'s look for differences, while *R*'s look for similarities. *D*'s prefer to see the contrasting elements of a problem and often ask, "What if . . ." *R*'s mold information into a synthesis; they look at a number of specific cases and try to explain them with one general rule. *R*'s are often analogous thinkers.

The fourth group, *L*'s, tend to use *M*, *D* and *R* models separately, or in combination, as seems appropriate. They may wander in explanations, and may find decisions difficult to make. *L*'s are data collectors and may need deadlines to force closure.

The last group, *K*'s, prefer deductive reasoning. They like working from the known to unknown, and using reasoning as in geometry/logical argument, somewhat in the Sherlock Holmes genre.

Teaching style mapping

The professional's map is augmented by three characteristics, *Demeanor*, *Emphasis* and *Symbolic Mode*, to form a teaching style map. There is no written inventory so mapping is empirical. A combination of *Majors* and *Minors* is to be expected, as is some difference in the map for each course taught.

Demeanor includes *Predominant*, *Switcher*, and *Flexible*, with each subgrouped as authoritarian *(a)* or permissive *(p)*. *Predominant* is fixed teaching style; *Switcher* is a style which assists students in adjusting to teacher style; *Flexible* is a style which adapts to match the student's. The subscript of *a* describes those who respect wishes and decisions of leadership, and expect their leadership wishes and decisions to be respected. The *p* style describes those who see learners as equals.

The second element of Emphasis is instructional orientation to *Persons*, *Processes* or *Properties*. The *Persons* element reflects a major emphasis in the teaching situation on the role of people; the *Process* element reflects a major emphasis on methods and evaluation; the *Properties* element reflects a major emphasis on course content, materials, media, facilities and time.

The last characteristic, Symbolic Mode, includes *Theoretical Predominant (TP)*, *Qualitative Predominant (QP)*, and *Reciprocity (R)*. The *TP* style emphasizes words and numbers in instruction; the *QP* emphasizes visual aids and experential learning; *R* emphasizes the other two equally.

The value in analyzing teaching style is the occasion it gives the instructor to assess learning environment alternatives. While decisions are not always perfect, they are the best possible.

Material style

A well developed methodology for mapping materials is yet to come. Therefore, discussion will be limited to ideas with the widest possible application and a recommendation for applied research.

Materials have an inherent style; that of the author, the media used, and the field in which they are written. Programmed materials are highly organized and structured. *Major F*'s could be expected to profit from using such materials while *Major A*'s might object to the *isolation* of the task and the behaviorist approach. Writing in the content fields reflect the thinking style of the field and appears positive for developing alternative learning strategies. Literature has elements of empathy, esthetic appeal and descriptive passages of body language. Science materials tend to be *M*, and philosophy *K*. Comparison and contrast, regardless of discipline, combine *R* and *D*. Skill development materials are directed toward closure; thus the *L* modality is least common. Rate materials are related to a sense of time, as are self-paced.

Most materials are authoritarian, or *F*, in style, concerned more with what answers are given than how answers are produced. Yet, since they are self-paced they are intended for the *I* or independent style. This paradox is more apparent than real when competent professionals mediate materials.

Materials may be mapped using the form in Figure 1, or a student survey. Asking students to assess materials used as to which were most helpful, which were least helpful, and which were neutral, and why, could be useful. Should the expected correlations with one or more of the twenty-eight elements be found, the information would be significant to the practitioner, and give direction to future research.

Materials mapping form

To map materials for use with individuals or groups (a) review the material, and (b) place an (X) opposite each element that would have an impact on instructing a student with a major in that element. Compare Materials Map with the student or class Map. Points of variance should be examined to determine whether materials should be supplemented or restructured.

Conclusion

Cognitive style research and application is young. Its promise is in extending the dimension of what is known about the teaching of reading. If education is a search for meaning and an instructor's task is to aid students in that quest, then the process of gaining meaning becomes an important factor As such, cognitive mapping becomes a communication tool, and a bridge between student and teacher to pursue meaning.

FIGURE 1

	Number/Item	Major	Minor	Negligible
	1 auditory, words			
	2 auditory, numbers			
	3 visual, words			
	4 visual, numbers			
	5 qualitative, auditory			
Gaining	6 qualitative, olfactory			
	7 qualitative, savory			
and	8 qualitative, tactile			
	9 qualitative, visual			
Perceiving	10 qualitative, proprioceptive			
	11 empathetic			
Information	12 esthetic			
	13 ethic			
	14 histronic			
	15 kinesies			
	16 kinesthetic			
	17 proxemics			
	18 self-knowledge			
	19 transactional			
	20 temporal			
Problem	21 associates			
Solving	22 family-authority			
Environment	23 individual			
	24 magnitude			
Thinking	25 difference			
Styles	26 relationship			
	27 appraisal			
	28 deductive			

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REDUCING STUDENT WRITING ANXIETY

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"Let's face it, writing is hell."
— William Styron

Students entering college writing programs frequently exhibit anxiety about the writing process and reluctance to engage in writing activities. Most instructors and counselors have encountered students whose fears about writing have made them frustrated, unhappy, disabled writers, and all have worked with students whose resistance to writing has limited their achievement in classes requiring writing. By adapting curricular and counseling strategies, we can help students accept their writing anxiety and learn methods for controlling it in order to engage themselves in the writing process. Students who can devote more attention and energy to the development and expression of their ideas rather than to their apprehensions about the act of writing will improve their writing performance.

Some causes of student writing anxiety

Writing anxiety may be based on an idiosyncratic combination of a variety of factors, both cognitive and emotional. Frequently students misunderstand the nature of the writing process and have, therefore, failed to develop their own strategies for getting writing under way; they may lack information about the actual characteristics of the written work they are attempting to produce; they may also suffer from emotional blocks relating to writing processes and evaluation. This paper will discuss briefly some of the factors contributing to writing anxiety and several methods for helping students overcome it. Others concerned with writing anxiety suggest similar causal factors and make similar recommendations for reducing writing blocks, Rose[33] particularly with respect to the contributions of cognitive factors and Bloom[1,2] with respect to the emotional factors as well.

Problems with the writing process.

1. Students entering college have usually not been taught about the process

of creative discovery and the process of composing in writing. Our focus on the product of that composing has led them to conclude that the piece of writing must spring forth fully matured from the mind of the experienced writer, without the flexibility and incubation actually characteristic of creative process.

2. What students have been taught about the writing process is frequently false: for instance, that good writers organize their thoughts in outline form in a highly controlled linear fashion before writing them out.
3. Novice writers often lack information about specific strategies for producing college essays, techniques for beginning to write and for discovering and generating ideas.
4. Students have generally been taught abstract rules about the characteristics of effective papers ("Be sure to have a strong thesis statement, varied sentence structure, vivid diction, correct grammar"). They may try to apply these while they are writing, often rather inflexibly, or use them to edit too early in the process of writing when they should be focusing on eliciting and expressing ideas.

Rose, after comparing the writing processes of students with writing blocks to those without such blocks, concluded that "blockers seem much more wanting in flexible heuristic rules and in rules and prompts that spark production. Blockers also express more misleading assumptions about composing and engage in more frequent premature editing."[33:30]

Problems with the written product.

1. College students often lack information about the specific characteristics which distinguish the type of paper which will fulfill their assignment well. They must then sit down to devise a product with only a vague and abstract sense of what is expected.
2. Students often lack concrete information about the criteria by which their work will be evaluated, how the criteria are satisfied, and how they can develop their papers to meet those standards.

Emotional interference.

1. As all of us do to a greater or lesser degree, many students find it difficult to manage their time and discipline themselves to begin and to persevere with demanding tasks such as writing.
2. Some students may be very self-conscious about themselves in the writing process, "monitoring" their behaviors as they write rather than focusing on the writing task and sometimes supplying self-critical commentary.
3. Student writers may be uninterested in the writing tasks we assign them, failing to see how they are relevant to their own academic or career goals.
4. Students may feel that their investment in the assigned paper is

frighteningly great, that a poor reception of it will reveal their lack of intelligence or hurt their future academic or career plans.

5. Students occasionally develop a sense of helplessness about their ability to improve significantly their written work, partly because of the vagueness of our markings, our tendency to use technical language, and our difficulty in conveying *how* to alter the paper rather than simply pointing out that it should be altered.
6. As a result of real or perceived overly-negative evaluation, some college writers become fearful and consequently inhibited. With anxiety about evaluation, it is not surprising that willingness to take risks, inherent to the writing process, is lessened.

Reducing student writing anxiety

Writing instructors and counselors must address these and related problems if they are to help students overcome their anxiety about writing. They can do so by insuring that curricular and counseling strategies provide students with information about appropriate processes and goals and that they encourage students to adopt flexible, systematic means for approaching their own writing. (See Bloom's[2] suggestions about workshops for reducing writing anxiety.)

The creative process. Discussing the process of creative discovery, with its interactive, overlapping stages of preparation, incubation, illumination, and verification, can help students gain perspective on their own creative thinking and the type of discovery found in their academic fields. Appropriate resource readings for instructors and counselors about the creative process might include Koestler[21], Ghiselin[15], May[23], Rogers[31], Stein[35], Wallas[36], Wertheimer[37].

The writing process. Students learn both strategies and appropriate attitudes when they are given information about the nature of the writing process. They learn that rather than being a formulaic operation, writing is flexible, moving "generally from conceptual problems to editing problems but moving cyclically, the writer shifting his focus of attention repeatedly among matters of content, style and structure during each cycle."[39:34] Information from case studies, small group comparisons, and discussions of process all may be helpful for the instructor or counselor in leading students to recognize that writing is an idiosyncratic activity frequently characterized by tentativeness and discovery: Cooper and Odell[4], Crowley[5], Elbow[11], Emig[13], Graves[16], Mischel[24], Murray[26], Perl[29], Pianko[30], Stallard[34].

The processes of experienced writers. Those teaching writing can tap the extensive body of commentary provided by published writers about the way they write—and avoid writing—and hate writing—in order to demonstrate how common writing blocks are:

> You don't know what it is to stay a whole day with your head in your hands trying to squeeze your unfortunate brain so as to find a word. — *Flaubert*

> I play patience, or draw marvelously intricate patterns on backs of old newspapers when I'm solving the crosswords. Then I feel ashamed and try to get back to work, but the phone rings or Edith calls me to tea, so I put it off for a later day. — *J.R.R. Tolkein*

> I'd rather eat ground glass than write. — *Christopher Fry*

Students can then delineate their own "rituals" for avoiding and beginning the writing process and keep journals about their successful and unsuccessful writing occasions. Murray[25], Della-Piana[7], Mack and Skeij[22] may all be helpful resources when one is beginning a collection of comments and quotations.

Instructors can also change student perceptions of the "rules" of the writing process by showing them successive drafts of the work of well-known writers to demonstrate that individual writers vary in the quality of their initial drafts, sometimes producing mediocre and even bad first drafts which only after substantial revision assume the form eventually published. DeSalvo[8] suggests available source materials for this purpose.

Instructors and counselors, as experienced writers, can help students learn to accept the flexible, "messy" side of writing by acting as role models. Students select a topic and "assign" it to their instructor standing at the blackboard. The modeling requires the instructor to "verbalize" the thinking process used to generate the rough draft, functioning in a manner similar to that of the role model in Whimbey's "verbalization" technique for developing reasoning skills.[36] Instructors can also bring to class or counseling sessions their own rough drafts and subsequent revisions to show students their false starts, rethinking, changes. Students can see that experience with the writing process and the ability to produce effective written work have not "solved" the problem of writing. Writers must still move from thoughts which are inchoate to acceptable drafts by application of systematic but adaptable problem-solving strategies.

Strategies for initiating. Students should be told about the advantages of "creative procrastination," of delaying the beginning of the writing until it is "ripe"[28], but also learn specific strategies for overcoming their tendencies toward more "destructive" procrastination. In *Overcoming Procrastination*[12], Ellis and Knaus demonstrate how procrastination can be caused by negative ways of thinking about oneself and one's task — by false and self-defeating attitudes which encourage self-devaluation and low frustration tolerance. They provide suggestions for dealing with the emotional bases for procrastination as well as specific behavioral methods for dealing with habits of delay, including: (1) identifying and directly disputing one's irrational beliefs which are leading to decisions to delay; (2) riding the wave of momentum from one

task to overcome inertia toward beginning another; (3) using a self-imposed profit-penalty system of rewards and punishments to begin and stay on task; (4) setting "bets" with oneself about completing the task. In *Overcoming Writing Blocks*[22], Mack and Skeij provide a wealth of specific hints for enticing and coercing oneself to begin to write, among them: (1) writing at the most energetic period of one's daily cycle; (2) dividing the writing project into tasks; (3) indulging in a "*planned* dawdle" while incubating ideas; (4) portraying one's "internal critic" and having a dialogue with that critical voice; (5) keeping a log about one's writing process to discover specific problem areas; (6) talking about one's topic with a friend; (7) reading over one's previous successfully-completed writings.

Strategies for inventing. Reluctance to write and fear about approaching the writing situation are increased when students lack information about systematic routines for discovering and generating ideas—they don't always know what to *do* when they begin to write. They are likely, therefore, to become more comfortable in their writing after they have learned and practiced several techniques for inventing ideas when writing. Young[39] and Harrington et al.[17] provide surveys of a number of methods of invention. Freewriting strategies described by Elbow[10,11], analogy and meditation techniques discussed by Rohman and Wlecke[32], problem-solving procedures proposed by Flower and Hayes[14], and techniques using probing questions such as those enumerated by D'Angelo[6] may be appropriate. Assignments must be structured so that students provide evidence of applying the new strategy; without such a constraint, students may be reluctant to abandon even temporarily known, if inefficient, means for starting to write in favor of unknown ones.

Product characteristics and evaluative criteria. College freshmen frequently have an uncertain image of the nature and level of quality of the product they are expected to produce in order to fulfill an assignment, and their uncertainty can lead to writing blocks. Instructors often assume that students understand what characteristics the paper is supposed to have — that they have an intuitive sense of what a good literary analysis or persuasive argument written for a freshman composition class should be like. This is not the case with most students, who can profit from two instructional devices: (1) supplying them with examples of good and poor papers written on a topic quite similar to that of the students' own assignment and discussing the reasons for the successes and failures of those papers; (2) giving them informal training in "holistic rating" of papers written on topics quite similar to those which are assigned and thereby helping them develop evaluative abilities to be applied in judging their own papers.

Curricular structure. Student apprehension about writing can be reduced also by structural adaptions of the curriculum which emphasize process,

flexibility, and discussion of writing problems the students reveal on particular assignments. Well-structured conferences can contribute to the building of the climate of trust, of psychological safety and freedom, which Rogers[31] feels fosters creativity; they can help students develop their own specific methods of overcoming writing problems and establish idiosyncratically successful writing habits; they can serve as a forum for "negotiating" topics for writing of interest to the student; they can furnish students with attentive listener and partner who is concerned with the drawing out and focusing of incipient ideas; they can provide an opportunity for instructors and counselors to be accepting and supportive while maintaining high standards; they can supply expert and adequate information about problems which actually appear in the student's writing rather than supplying abstract strictures prior to the appearance of the problem. Student self-assurance in writing is promoted when students engage in conferences with instructors and tutors who serve as collaborators rather than evaluators, who seek to help students understand and nurture their own writing processes, clarify their thoughts, obtain verification for ideas, deal with the discourse-level as well as sentence-level demands of purpose and audience. (Cooper[3], Duke[9], Karliner[19], Karliner and Jacobs[20], and Murray[26], among others, discuss the characteristics of effective writing conferences.) Assisting students in the conference setting to apply concretely what they have discovered about the writing process, about standards and characteristics expected of their written products, and about their natural emotional reactions to the demands of the writing situation helps them see themselves as confident and independent, learning *about* writing in order to learn *through* writing and to communicate that learning to others.

Structuring the writing curriculum or counseling arrangements to encourage, allow, and perhaps require submission of rough drafts and then regarding these drafts as legitimately tentative and embryonic may help allay student writing anxiety, since students need not "gamble" that they have guessed correctly the form and standards required by the instructor. These drafts can serve as the basis for discussion in conferences or in peer critique sessions such as those described by Elbow[11] or Hawkins[18], receive general or detailed comments from the instructor, or simply demonstrate that students are continuing to develop their ideas and their expression toward greater precision. During oral or written suggestions, the instructor can reduce or eliminate some sources of fear about writing by comments which are psychologically supportive and pedogogically explicit: (1) emphasizing that the draft is considered as provisional, not representative of the students' full potential as a writer; (2) analyzing the draft for its inherent possibilities and encouraging their development; (3) focusing the student on the most fruitful areas for that development; (4) selecting a limited number of areas for attention in the subsequent revision; (5) using non-technical language and examples to clarify problems which the student might wish to address during revisions; (6) describing explicitly the process by which those

problems can be ameliorated; and, as Cooper suggests[3], (7) *making sure that the student knows what to do next.*

Conclusion

When we teach students about creative and writing processes, give them explicit information about our expectations, and structure our curricula to provide them support as they develop successive drafts of a piece of writing, we address both cognitive and emotional bases for fear of writing. When we emphasize flexibility and the writer's role as a learner through writing, we direct our focus away from the anxiety-producing "test" of the written product. To reduce student writing anxiety and improve student writing performance, we must follow Murray's recommendation "Instead of teaching finished writing, we should teach unfinished writing, and glory in its unfinishedness. We work with language in action."[27:80]

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A COMPARISON OF TWO NOTETAKING TECHNIQUES WHICH CAN BE USED BY DEAF COLLEGE STUDENTS

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The Rehabilitation Act of 1973 went into effect in 1975 for public schools and in 1980 for colleges and universities. Section 504 of this Act says that no otherwise qualified handicapped person can be excluded from an education because of disability. It also says that institutions of higher education may not discriminate against the handicapped in the areas of recruitment, admissions, and treatment of students. Section 504 has potential impact on colleges that enroll even one handicapped student. The following study is focused on the needs of one type of handicapped student: the deaf.

The administrative services to deaf students, required by Section 504, are really long-term commitments. The regulation does not assume a one-time activity, like removing architectural barriers. Whenever a deaf student requests one, the school must make a sign-language interpreter available. In addition, the school may need to provide hearing notetakers, who can assist the deaf student. Both of these are expensive, long-term commitments, but ones which must be carried out.

Instructors who have never had a deaf student in the classroom may wonder what their new role will be. Instructors should know that their responsibility is no different whether or not deaf students are present. The instructor teaches; the interpreter translates.

Most hearing persons are not aware of the prevalence of hearing impairment. "Impairment of hearing is the single most prevalent chronic physical disability in the United States. More persons suffer a hearing defect than have visual impairments, heart disease, or other chronic disabilities".[5:1] Recent estimates show that 14 million Americans have a hearing impairment. Of these, 1.8 million are deaf. In California alone, there are nearly 1.5 million hearing impaired of whom 186,708 are deaf.[5] Even though these data are old, this figure for the deaf nonetheless represents the second largest bilingual — Ameslan and English — population in California.[4] In fact, sign language — Ameslan — is now the third most widely used language in the United States.[3]

Present educational needs of deaf students

Deaf persons receive their information visually. They must watch the speaker or signer closely or they will lose the train of thought. Although instructors do signal the importance given to certain material presented in class by their non-verbal behavior, taking notes on classroom lectures still presents problems for the deaf; they need to be taught to read those instructor signals which are usually unconscious movements on the part of the teacher.

At present, deaf students need two normally hearing assistants for most classes to get through school. One must interpret while the other takes notes. "Unless an instructor paces a presentation to the needs of deaf students, stopping periodically to give them an opportunity to write, the deaf student cannot both follow a lecture and take notes on it."[2:62]

But if deaf students can be taught to take efficient class notes themselves, they can take a big step toward being more independent. No matter how well written or well organized are notes written by someone else, those written by the deaf students themselves are more easily assimilated and recalled. When students actively participate in their learning, they need less help and can be more responsible for their own education.

Statement of the problem

The purpose of the study was to discover whether self-generated lecture notes written by using the services of a sign-language interpreter would result in better understanding and recall of didactic material by deaf college students than would notes written by a normally hearing person and given to postsecondary deaf students in the regular classroom. The purpose was also to discover whether the learning of the self-generated method would be accompanied by enhanced self-concept.

Hypotheses

Four null hypotheses are advanced.

The first hypothesis is that self-generated lecture notes by a deaf student will not result in significantly different objective test scores on items covering the lecture material than notes taken by a normally hearing person and given to a deaf student after a lecture.

The second hypothesis is that deaf students who utilize the self-generated notetaking method will not respond in a significantly different way to an attitude scale which measures subjective feelings toward the notetaking method utilized than deaf students who have their lecture notes supplied to them.

The third and fourth hypotheses are intermingled. They are that deaf students who are taught and who utilize the self-generated notetaking technique will not change significantly in their self-concepts or in their acceptance of others, as measured on a standardized attitude scale, than deaf students who must utilize traditional notetaking services.

The experimental notetaking method

The basis of the experimental notetaking method is a cardboard template, 8½"×11", with raised lines on it to produce a washboard effect. This template is placed under a regular sheet of notebook paper. The raised lines can be felt through the paper, and students can write in straight lines without averting their eyes from the interpreter. (This cardboard template is currently being used by newly blind adults who have not yet learned Braille, but who still need to write. It is also used by the blind as a backing board while pin-pricking in Braille.)

For a group to learn to use this washboard takes about thirty minutes. The first step is to become familiar with the template. To do this, the student lays a sheet of notebook paper over the template and anchors it in place with paper clips. If the sheet of paper is in a three-ring binder or in a spiral notebook, this anchoring is not necessary. Then the student feels the paper to discover where the lines are, how far apart the lines are, and how to get to the next line. All this is done without looking at the paper and template.

In the second step, students write their full names five times in paragraph form. This is to acquaint them with the proper spacing between words. This technique is practiced while looking at the blackboard or at the interpreter — anywhere except down.

The third step moves the students into writing common phrases such as "happy birthday," "time of day," etc. several times in paragraph form. Again, the emphasis is on practicing spacing, crossing *t*'s and dotting *i*'s, feeling the lines of the washboard while writing, sensing the end of a line, and progressing to the next line without writing over the same line or a previous one.

The fourth and final step is to have the students take notes using the washboard for a ten-minute lecture of this researcher's devising on how efficient class notes are taken while an interpreter signed the practice lecture.

This four step training in the use of the template takes thirty minutes. In the actual study, several students stated that after training, they felt comfortable using the washboard without looking at it to write.

Procedure

The study was conducted at California State University, Northridge, in November 1979. The study participants were profoundly deaf college students who, prior to the age of 19, had lost — or never had — the ability to hear and understand the spoken word. There were 24 students each in both the experimental and control groups. Two research designs were employed: the randomized control group, posttest-only research design for Hypotheses 1 and 2, and the randomized control group, pretest-posttest research design for Hypotheses 3 and 4. The test instruments used to gather data were the *Test for Economic Understanding*[6], Berger's "Acceptance of Self and Others"[1], and "Attitude Toward Notetaking"[7].

Experimental and control group procedures were as follows: after sufficient instruction and practice, participants in the experimental group wrote their own notes to a videotaped lecture on Economics which had been interpreted into sign language. Then, immediately after the lecture, an objective test was administered covering the content of the lecture. Participants filled out four attitude surveys — two immediately and two two-weeks later. The control group followed the same procedures, except they were not allowed to take their own notes on the Economics tape. Instead, they were given a complete set of notes after the lecture. They also took the objective test and filled out the attitude surveys.

Results

A t-test for the significance of difference between independent groups was applied to the Economics scores, resulting in $t(46) = 3.98, p < .001$. Therefore, deaf students who take their own notes did obtain higher scores on objective tests than deaf students given notes. Hypothesis 1 was thus rejected.

An analysis of covariance was applied to the notetaking attitude scores, which revealed $F(1,45) = 97.37, p < .001$. Deaf students felt better about taking their own notes than about using notes given to them. Hypothesis 2 was also rejected.

A t-test was applied to the mean gain scores of the self-acceptance scores resulting in $t(46) = 3.99, p < .001$. Deaf students did improve their self-concepts after learning the experimental notetaking method. Hypothesis 3 was rejected.

A t-test was applied to the attitudes toward other scores resulting in $t(46) = .56, p < .05$, suggesting that, in learning the self-generated method, deaf student attitudes toward others did not change. Hypothesis 4 cannot be rejected.

Implications

If the results of the study can be viewed as indicative of the benefits of a technique which permits deaf college students to generate their own lecture notes, then we can conclude that deaf students taking their own notes would become more independent and more self-reliant than the traditional approach allows them to be. Although an interpreter is still needed for full student participation with the new method in class, the hearing student taking notes for the deaf student could be eliminated. It is suggested, further, that, with independence, the students would think better about themselves and what they might achieve in a mainstreamed college setting.

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INCREASING STUDENT PERFORMANCE THROUGH QUESTING TECHNIQUES

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Independent learning skills are a necessary component for success in the introductory science courses. Many beginning college students have not been taught specific learning techniques, or they lack the inherent inquisitiveness for the individual development of these skills. The enormous failure rate of 50 to 60 percent in the introductory Biology 110 course at New Mexico State University initiated an inquiry into the problem. As seen by the major instructors of the course, the beginning students were deficient in the basic knowledge of the content area and in the skills necessary for attaining this information. Through work with higher level biology students several productive study techniques were identified. The basic skill underlying the methods for successful learning in science was the ability to develop questions. This finding initiated a search on the value of questioning in teaching and in independent learning.

The value of questioning

A review of the literature concerning questioning as an important aspect of teaching and of learning found a consensus of opinion.[1,2,3,4] Questioning is the quintessential aspect of teaching. Good teachers ask good questions. Efficient and effective learners learn because they are inquisitive. By structuring questions for the learner, teachers build in inquisitiveness. Questioning gives the basis for selecting and for organizing the ideas presented.[4] Strategic questioning helps the learner to internalize ideas by providing a particular sequence for organizing and combining ideas into a cohesive whole.[3]

The impetus for the development of higher level study skills is to help students become independent learners by providing techniques that will achieve specific objectives. The student must be able to select and comprehend the important ideas. The technique must also help the student to retain those ideas by fixing them in memory and furnish an efficient method of review for examinations.

One such technique, *SQ3R*, was developed by Robinson in 1946.[4] This approach requires questioning as an integral component for its success. In research conducted by Robinson, after students were taught *SQ3R*, reading rate increased from 34 to 56 percent, and comprehension accuracy improved from 43 to 53 percent. On two similar quizzes students first using their own study methods made 15 errors, but when they were shown how to predict questions there were only six errors.[4]

Experimental rationale and implementation

In the introductory Biology 110 course at New Mexico State University, Spring Semester 1981, an experiment was proposed to test the effectiveness in training teaching assistants the value of questioning and the use of study questions to increase student performance. The first step in the experimental project was to gain the acceptance and the approval of the professionals in the area. Even when the project plan was agreed upon, its acceptance was the most important, yet the most difficult and time consuming.

The initial discussions of the experimental methodology were held with the enthusiastic and supportive instructors involved in the target course. The experimental plan divided the demonstration/recitation laboratory sections into control and experimental groups. Teaching variables were controlled for by assigning each teaching assistant both experimental and control sections.

Experimental sections were provided study questions prior to the laboratory in order to promote student preparation and interest in the subject. Preliminary preparation through stimulating questions was designed to help the students organize and understand the information presented during the laboratory demonstration. The hypothesis was that students completing the study questions and actively participating in the demonstration would improve their test scores.

Control sections were not given study aid or stimulating questions. These students had to rely on their own interest and motivation to properly prepare for the laboratory and subsequent quiz. If the quizzes reflected the initial study questions given to the experimental groups, the scores of the control students should be lower than those of the experimental students. In addition to improving student preparation, the weekly development of study questions was designed to regulate and augment the teaching assistant's preparation for the laboratory sections of the course.

The proposed rationale and experimental plan was approved by the Biology Department and then discussed with the four faculty members teaching and coordinating the Biology 110 course. The lecture course was divided and taught by the three faculty members and the laboratory sections were coordinated by the fourth. Positive support generated from the lecturing faculty brought about the approval and subsequent implementation of the project.

The experiment

The initial phase of the experiment consisted of a study skills presentation to all Biology 110 students. During the first week of class one lecture was devoted to the presentation and demonstration of SQ4R, a two-column method for reorganizing notes, mapping, and vocabulary development techniques.

The second phase of the experiment was conducted with the adjunct laboratory sections of the biology course. Each teaching assistant prepared one or two study questions that would serve as a model of the type of questions the students should formulate during independent study. The questions indicated the expected level of student preparedness for the demonstration. They also helped students to predict the content of the quizzes.

In addition to the preparation of study questions, each week one of the teaching assistants would develop the main points of the upcoming demonstration in a seminar type presentation to the remaining teaching assistants. This event evoked peer pressure and proper preparation for the demonstration. The presentation, in conjunction with question preparation, assured prior anticipation of the content, main ideas, and organization of the demonstration.

Five to seven revised study questions were distributed to the experimental sections one week preceding the demonstration they covered. This provided time for the students in the experimental sections to prepare, to organize, and to predict questions for the laboratory and the subsequent quiz. Control students did not receive any preparatory material other than that given during lecture.

Quizzes reflecting the content of the study questions were given one week after each laboratory. Students in the experimental sections receiving the questions were expected to improve their quiz scores compared to students' scores in the control sections.

Results

A total of 308 students were enrolled in the introductory Biology 110 course at New Mexico State University, Spring Semester 1981. Of this total number, 142 were in the experimental laboratory sections, and 166 were in the control sections. A *t*-test analysis of the students scores after five quizzes resulted in no significant difference in the mean scores of the experimental and control groups.

Although the total mean scores of the two groups were not statistically different, a small subset of the experimental group did show some improvement when compared to the control mean. This subset consisted of those students who tried to complete most of the study questions.

Table I presents the mean scores of all students in the experimental and control groups and two student subsets within the experimental sections. The

subset groups were divided according to the number of weekly study questions the students tried to complete. $EX_{(1-5)}$ denotes the students completing some of the study questions and $EX_{(4-5)}$ signifies those who tried four or five of the question sets. The subscripts of each mean identifies the number of participants within the section.

TABLE I

	Mean section scores for each teaching assistant						Total Mean
$EX_{(TOTAL)}$	$6.1_{(13)}$	$7.5_{(20)}$	$7.0_{(24)}$	$6.3_{(22)}$	$6.2_{(20)}$	$6.9_{(21)}$	$6.7_{(120)}$
$EX_{(1-5)}$	$6.6_{(6)}$	$7.6_{(19)}$	$7.3_{(17)}$	$6.3_{(22)}$	$6.3_{(19)}$	$6.9_{(21)}$	$6.8_{(104)}$
$EX_{(4-5)}$	$7.9_{(2)}$	$8.0_{(5)}$	$7.8_{(4)}$	$7.3_{(9)}$	$6.8_{(7)}$	$6.7_{(8)}$	$7.4_{(35)}$
Control	$—_{(0)}$	$7.5_{(18)}$	$7.0_{(18)}$	$6.5_{(24)}$	$6.1_{(24)}$	$6.8_{(24)}$	$6.8_{(108)}$

The mean of each group varies with the different teaching assistants, but the total average mean is slightly higher for those students who most completely participated in the answering of study questions.

A final questionnaire given to all biology students indicated that 46 percent studied the questions, and 53 percent thought the questions helped to prepare for the upcoming quiz. Table II presents the data of the questionnaire.

TABLE II

Percentages of students using study questions

	saw	read	studied	completed	helped to prepare
$EX_{(TOTAL)}$	66	66	46	60	53
Control	29	20	20	21	

Discussion

A variety of problems generated from the initial lack of acceptance and proper implementation of the project brought about the inconclusive data of the effectiveness of the experiment.

1. The key faculty member coordinating the laboratory sections and the teaching assistants did not totally accept the proposed project. It was

considered to be time consuming, unwanted work, and a technical difficulty. The discussion of questions was always last on the agenda designating its perceived importance. Therefore, the time spent in the development of more effective questions was limited to ten or 15 minutes. Due to a feeling of inevitable student incompetence, the project was not highly valued or given support.

2. During the weekly teaching assistant meetings absolutely no authority or freedom was given to the instigator of the experiment. This stifled all attempts to train the teaching assistants in more effective questioning techniques. Questions were often very rough and incomplete, but any revision by the instigator with the help of enthusiastic faculty was considered inappropriate by the teaching assistants.
3. Due to the transference of negative attitudes toward the experiment, many teaching assistants did not develop questions to be discussed and evaluated during the weekly meetings. Strong implementation of the program by the teaching assistants was deficient because they also began to feel it was of little value. Questions were distributed to the experimental sections, but the students were given little impetus to complete the questions. This low pressure situation resulted in very few students actually trying to complete the study questions. Also, inaccurate records were kept of those students who truly participated in the program.
4. Initial student reinforcement for completing and studying the questions was totally absent. The questions were not discussed or reviewed and credit was not given for completing the problem sets. This only contributed to a lack of motivation among the students to utilize the questions in studying.
5. Early in the semester, the teaching assistants were especially determined to make quizzes that would prevent any disadvantage to the control students not receiving the study questions.
6. Weekly quizzes did not reflect the content of the study questions and this was to have been an important aspect to the success of the experiment.

There were several positive outcomes of the experiment even though the study does not provide conclusive results.

1. The initial lecture presentation of study techniques to the entire Biology 110 course was richly accepted by the students. Almost all students actively participated in the practice sets, and some were interested enough to enroll in the Personal Learning Skills course offered in the Learning Assistance Center.
2. The experimental proposal directly initiated several changes in the strategy of the lecturing faculty. They integrated study questions, outlines, vocabulary, and review sessions into the lecture sections of the Biology 110 course for the first time.

3. The revised experimental methodology provides a workable plan for future integration into the Biology 110 adjunct laboratory sections. This study not only designates the essential components for success through questioning, but also gives insight into the problems encountered in the implementation of this type of program.

Conclusion

As a direct result of the implementation of this experiment, Biology faculty members have acknowledged the value and necessity for the incorporation of study aids into the Fall Semester 1981 course format. Experience as a scientific researcher provides awareness of the importance of initial experiments in devising the proper methodology for attaining significant and conclusive results. Although this study does not provide conclusive evidence of the effectiveness of questioning techniques, it has increased awareness of the Biology faculty members to possibilities of incorporating learning skills into the course so as to reduce the high failure rate. The project has also created an atmosphere of change and has served to develop an effective plan to be implemented in the future Biology 110 course.

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THE LEARNING LAB — SHARING WHAT WORKS

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While it is acknowledged that one can and should learn from one's mistakes, professionals in learning assistance should accentuate the positive and focus on what is successful. This applies to working with students as well as sharing with colleagues. Much information is available in the professional literature about successful public relations techniques; however, the use of successful public relations techniques to attract students and evaluation techniques to document and improve services is also necessary.[2]

The Learning Lab at Morehead State University offers academic assistance to students outside the classroom.* It provides an individualized, audio-visual, tutorial facility for students to improve math, writing, reading and study skills on a non-credit basis. Students work at their own pace on programs prescribed specifically for them or they are assigned to one of the skilled peer tutors on a one-to-one basis.

Public relations in the learning lab

None of these services can be implemented unless students utilize the lab's facilities. In order to promote student use of the lab, it is necessary to set up effective public relations with both faculty and students. Public relations strategies are primarily concerned with dissemination of information about the lab. The professional literature contains many good examples of methods used in various institutions.[4,6]

Strategies geared toward faculty are intended to encourage them to refer students to the lab. The fostering of the necessary good will of the faculty was undertaken even during the developmental stages of the lab; interested department members in three core academic areas (languages and literature, mathematics, and reading) were consulted about the choice of programmed materials to be purchased in their areas of expertise. Faculty members also recommend or approve the choice of lab tutors in their content areas.

The lab personnel have also found it successful to encourage faculty involvement and cooperation through the following strategies:

1. Distribution of information regarding new materials or services that would pertain to their students;
2. Brochures detailing lab information;
3. Open houses to familiarize them with the facilities and materials;
4. Feedback through monthly memos regarding students they have referred to the lab;
5. Presentations to faculty meetings;
6. A slide/cassette presentation developed geared specifically to the faculty to present the lab's objectives and services.

Some public relations efforts involve both faculty and students. For example, at the beginning of each semester the lab offers to have a tutor, a graduate assistant, or an instructor speak to individual classes. This brings the information to the students and allows them and their instructor to familiarize themselves with the lab staff.

Other proven strategies aimed at encouraging student participation include the following:

1. Brochures detailing lab information and services;
2. Advertising bookmarks;
3. University newspaper stories and ads;
4. Fliers advertising special events posted in campus buildings and mailed to select groups;
5. University radio ads and talk shows;
6. Open houses for students;
7. Study skills workshops held in the lab;
8. Study skills workshops held for special groups;
9. A slide/cassette presentation of lab information and services, geared to students.

Data collection and evaluation in the learning lab

The best public relations strategies can only get the student to come to the Learning Lab. Once students are there, their needs must be met in a positive, efficient manner in order to encourage their return. Since use of the Learning Lab at this university is voluntary and university policy discourages excessive standardized testing, the methods of evaluation are somewhat restricted.

Many methods of evaluation are used by different institutions and a recent survey[1] of Learning Assistance Centers shows the most commonly used methods are those listed below:

1. User questionnaire,
2. Center usage,
3. Standardized tests,
4. Analyses of users' GPA,
5. User attrition,
6. Campus administration evaluation.

Controversy over the most valid type of evaluation goes on: objective (hard) vs. subjective (soft). In *Improving Student Learning Skills*, Martha Maxwell concludes, however, that,

> In short, it is imprudent to prejudge and stereotype "hard" and "soft" evaluation. These are extreme forms of a continuum that enmeshes design, data, and analysis. There are good hard and good soft evaluations (appropriate to the questions raised, feasible, and technically sound). And, just as clearly, there are bad hard and bad soft evaluations. But most comprehensive evaluations, of necessity, include both hard and soft components: and both are almost bound to find their critics as well as their praisers.[5:449]

The methods in this evaluation system combine both objective and subjective evaluation.

Objective evaluation

On a regular basis (each month, semester and year), the lab personnel compile data concerning student use of the Learning Lab. This data reports the following:

1. The frequency of student use;
2. The number of times each individual uses the lab;
3. The skill area the student worked in (writing, math or reading/study skills);
4. The instructors who have referred students;
5. The change in lab use from the same month or semester last year.

For more sophisticated evaluation, the Learning Lab staff calls on those faculty members whose expertise in research is superior. Psychologists are particularly interested in studying learning behavior. One recent study was done using six sections of Developmental Composition students. It sought to understand the relationship between student visits to the Learning Lab and objective measures of student performance. Student final grades and scores on the Language section of the *Test of Adult Basic Education* (TABE) administered at the end of the 1980 Fall semester were used as dependent variables. The conclusions we draw from this study follow:

1. Using Analysis of Variance, it was found that although grades may be effective in evaluating class performance, these grades do not appear to be sensitive to basic skills acquired in the Learning Lab, $F = 21.52$ $(34,21)$, $p < .0001$.
2. An Analysis of Variance indicated the course selection membership influenced the final grade of students whether or not they visited the lab, $F = 2.42$ $(5,50)$, $p < .05$.
3. An Analysis of Covariance controlled for the influence of course sections indicated that regular use of the lab is measurably beneficial to the students, and the amount of increase in basic skills as measured by the TABE is directly related to the frequency of lab visits, $F = 81.75$ $(34,1)$, $p < .0001$.

Subjective evaluation

The subjective evaluation includes opinion surveys for faculty and students. The faculty survey was simple: six "yes" or "no" questions and requests for comments concerning their experience with the Learning Lab. Thirty-four percent of the faculty responded to this mailed, anonymous questionnaire. The questions and percentages of responses are listed in Table 1.[3]

The questionnaire responded to by 150 students in randomly chosen freshman composition and college algebra classes was more complex. Certain general data were most informative.

1. Thirty-one percent of those responding had used the Learning Lab.
2. Eighty-seven percent of the students had heard of the lab.
3. The primary source of information was the course instructor, followed in order by friends, advertising and tutor talks in class. Twenty-two percent had received information from more than one source!
4. Seventy-two percent could correctly identify the location of the Learning Lab.
5. Sixty-six percent of those who indicated a preference would suggest additional lab hours; 29% thought the current lab hours were adequate.

In those questions pertaining only to those who had visited the Learning Lab, the majority, in each item but one, agreed or strongly agreed with positive statements regarding their experiences. The one exception was the statement, "My work in the Learning Lab has improved my grade in class." — only 50% agreed or strongly agreed with that statement. The students' opinions in this area concur with the faculty opinions and the empirical data found in our study. Unfortunately, since the Learning Lab has only been open since January, 1980, it is too soon to do any long-range research on grade-point average or retention.

It is interesting, however, that in spite of the fact that most did not believe it helped their grade, 82% said they would return next semester if

TABLE 1
Faculty Evaluation of Learning Lab

1. Through what channels have you received information concerning the Learning Lab?*
   A. colleagues — 43% B. students — 22%
   C. advertising — 25% D. meetings — 27%
   E. I was not aware of the Learning Lab — 30%

2. Would you be interested in information regarding the services the Learning Lab offers?
   A. Yes — 87% B. No — 13% Comment:‡

3. Have you referred a student to the Learning Lab?
   A. Yes — 49% B. No — 51% Comment:

4. If you have referred students, has there generally been any observable progress in the students' work?
   A. Yes — 65% B. No — 35% Comment:

5. If you were to refer a student to the Learning Lab, would you want written feedback from the lab staff?
   A. Yes — 71% B. No — 29% Comment:

6. Are there any additional services that the Learning Lab might provide for you and your students?
   A. Yes — 8% B. No — 92% If yes, please identify.

*Respondents were able to choose more than one answer; therefore, the total equals more than 100%.
‡In all, 72 comments were made on the various questions to clarify responses.

they encountered problems, and 80% would recommend the lab to a friend.

Of those students surveyed who had not used the Learning Lab that semester, 85% felt that it was because they had no need or were not interested. Thirty-three percent indicated that their instructors had not suggested it; 24% felt the hours were inconvenient; and 19% had never heard of it. (The students were allowed to choose more than one response.)

Now that the data is collected, how is it used?

As a result of this recent evaluation, the Learning Lab has made a major procedural change. Since it has been found that only regular use of the lab

measurably affects the skills of students, the emphasis of the lab has been changed from "walk-in" to an appointment basis. Students who need regular help are encouraged to schedule one or more appointments per week; others, of course, may only need to work with a tutor once. With this emphasis, fewer individuals may utilize the Learning Lab, but there will certainly be a more meaningful impact on those who do enter the program. As with all change, this procedural change has not been without problems, but the overall response of the students has been positive and an evaluation will be conducted after two full semesters of implementing this policy.

Conclusion

To enhance our growth as professionals, we must continue to "share what works." Charlie Brown said it best: "The more I learn, the more I learn how much I have to learn."

*At various times in the development of the lab, funding has come from Title VI, Title III, and Title IV (Trio Programs), as well as institutional sources. It should be noted that although external funding has been instrumental in bringing about a new emphasis on the needs of the high risk learner, this activity and others, which are already integrated into the university organization, are slated for full funding through institutional sources.[3]

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PERCEPTIONS OF THE READING PROCESS AND LEVELS OF READING ACHIEVEMENT

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Although this paper presents research findings from data gathered on high school freshmen, extensive pilot testing with community college students yielded essentially the same results. Also, a modified replication now in progress by Osburn[8] at a four-year college appears to be eliciting parallel findings.

Purpose of the study

The two purposes of this study were (a) to investigate how ninth-graders on three levels of reading achievement perceived the reading process, and (b) to examine the within-group and within-subject consistency of responses.

Existing research, such as that done by Denny and Weintraub[4], Downing[5], Edwards[6], and Reid[9], documents the confusion many young children have about the concept of "reading." A recent study by Canney and Winograd[3] strongly supports the theory of a link between readers' "schemata"[1] of reading and their levels of reading achievement. Virtually no research had been conducted with students at secondary level or above to examine their perceptions of the reading process in relation to their levels of reading achievement, although it seems likely that such a relationship would exist for them as well as for younger readers.

It was hypothesized that older poor readers, in particular, might have inaccurate or incomplete schemata of reading since they had never experienced fluent reading. If this were so, then these faulty perceptions could actually hinder their progress in reading. Observation in the classroom reveals that older students frequently seem convinced that a lack of knowledge of phonics and/or speed is what separates them from the "good" readers. Consequently, they may expend considerable time and effort on nonproductive activities or in trying to refine strategies which are of limited usefulness.

Procedures

Since one purpose of this study was to investigate a possible relationship between perceptions of reading and subjects' reading levels, five students were chosen at each of three reading levels: low (3.5 to 4.9 grade level), middle (6.5 to 7.9), and high (9.5 to 10.9). Reading levels were based on scores from *Gates-MacGinitie Reading Tests*[7] and teacher judgment. Males and females of varying socioeconomic levels and ethnic groups were represented in the sample.

Each subject was individually administered four instruments: two forms of an interview and two concrete tasks. Four instruments were used in order to determine whether subjects were giving consistent responses individually and within groups. All responses were tape recorded for subsequent transcription and analysis.

The first instrument was the Open-Ended Interview, a modified form of the *Burke Reading Inventory*[2]. Subjects responded verbally to seven questions designed to reveal their perceptions of the reading process. Later, their responses were classified as having a decoding focus, a meaning focus, a decoding-and-meaning focus or as non-classifiable.

The second instrument, the Silent Reading Task Cards (SRTC), consisted of five second-grade level expository paragraphs typed on individual cards. One passage was intact; the four altered forms were syntactic-within sentences (words in sentences rearranged so that the sentence was decodable, but not meaningful); graphophonic (letters in words rearranged so that decodable nonsense words resulted); semantic (every other noun and verb replaced with semantically inappropriate ones); and syntactic-across sentences (original words and word order preserved, but periods moved so that different, but meaningful, sentences resulted). Subjects were asked to examine each card, decide whether or not a person could read it, and explain why or why not.

The third instrument was the Forced-Choice Questionnaire, a typed copy of the same seven questions the subject was asked initially, but with a set of two responses typed beneath each question. One response was decoding-centered; the other was meaning-centered. The examiner read the questions and the responses aloud as the subject followed along. The subject then selected the response which more nearly reflected his or her opinion.

The last instrument was the Oral Reading Task Cards (ORTC). These consisted of five second-grade level paragraphs typed on separate cards and a cassette tape with altered versions of each passage. Subjects followed along on each unaltered typed card while listening to the taped oral reading of it and then gave their opinions about the way the passage had been read (to determine their perceptions of "good" and "poor" reading). The five altered versions which subjects heard on tape were syntactic-within sentence (a total of five word additions, omissions and transpositions within sentences were used to disrupt passage meaning); graphophonic (five graphophonic miscues

destroyed the meaning); corrected (seven miscues of various types were included by the reader, but corrected); semantic (five nouns in the passage were replaced with semantically inappropriate ones); and syntactic-across sentences (periods were moved so that comprehensible, but different, sentences resulted).

Data analysis

Data were examined to detect across-group and within-group differences in perceptions of the reading process. Some data pertaining to response totals were analyzed statistically using one-way ANOVAs, Duncan Multiple-Range tests, a *t*-test, and chi-square tests of independence; others were recorded in terms of response frequencies; the remainder was analyzed descriptively. An independent rater was used to validate the classification of responses into response categories on the Open-Ended Interview. Within-subject consistency of responses was examined and reported quantitatively and descriptively.

Major findings

As measured by four tasks, there were differences in the perceptions of the reading process among three groups of ninth graders who read at low, middle, and high levels. The low group perceived reading primarily as decoding; the high group perceived it as a meaning-centered process. The middle group reflected a concern for both decoding and meaning, seeing both as parts of the process.

An ANOVA and post-hoc comparisons on the Open-Ended Questionnaire responses revealed that the low group gave significantly ($p < .01$) more decoding responses than either of the other two groups. The total number of meaning responses also differed significantly between all pairs of groups, with the number of meaning responses increasing as reading levels increased.

An ANOVA of the total number of responses on the Forced-Choice Questionnaire showed significant differences in the number of decoding responses and the number of meaning responses between all pairs of groups, with the low group choosing primarily decoding responses, the middle group choosing approximately equal numbers of decoding and meaning responses, and the high group selecting mainly meaning responses.

On the SRTC, the high group used comprehensibility as a requisite part of "readableness." In general, there was a shift upward through the groups towards using meaningfulness, not just decodability, as the criterion of readableness. The responses to the semantic and syntactic-across sentences passages clearly differentiated the high group from the others. Subjects' gratuitous comments suggested that the high group was the best judge of comprehensibility.

On the ORTC, only one of the taped passages, the corrected version, was

meaningful. As the reading levels of the groups increased, so did the number of "poor" ratings, with the middle group being the most ambivalent as to what constituted "good" reading. As reading levels increased, so did the ability to judge accurately the quality of the oral reading of the passages. There was also a differential shift across the groups, with the higher groups increasingly recognizing that the oral reader had not comprehended the majority of the taped passages.

The high group manifested the greatest within-group agreement across all four tasks in perceptions of the reading process; the middle group showed the least within-group agreement.

The Open-Ended Interview and the Forced-Choice Questionnaire questions dealing with subjects' perceptions of the reading process elicited consistent information from the majority of the subjects. Two-thirds of the subjects gave the same responses to 85% or more of these questions. Of the five remaining subjects, three were consistent in their responses to 71% of the questions, while the other two subjects answered less than half of the questions the same way on both instruments. The average within-group consistency of responses was approximately 83% for the low and high groups and 71% for the middle group.

Responses to the SRTC and ORTC indicated that both instruments had elicited consistent information regarding subjects' perceptions of the reading process. High group subjects generally demonstrated more within-group consistency in their responses. The low and middle groups showed less, but approximately equal, consistency in their responses to the two tasks.

Educational implications of the study

Teachers should informally assess students' (particularly low-achieving readers') perceptions of the reading process since incomplete or inaccurate schemata appear to be related to reading achievement in some students.

Teachers should seek interesting, comprehensible materials and employ procedures and activities that illustrate that the goal of reading is comprehension. If necessary, direct teaching about the nature of the reading process might be warranted.

Teachers might benefit by becoming aware of their own theoretical orientations toward the reading process and the way these manifest themselves in the instructional methodologies and materials they use.

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FINAL STATISTICS GRADE AS A FUNCTION OF THE AMOUNT OF TUTORING RECEIVED

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College learning centers, with their tutoring and study skills programs, are offering adjunct learning environments to the traditional learning methods.[9] Although these tutoring programs support the educational method of each instructor and attempt to meet the individual learning and study requirements of each student, a perusal of the literature indicated there was a paucity of empirical research involving learning center tutoring situations. Learning center justification and evaluation has been accomplished with descriptive and subjective methods[3], the utilization of student questionnaires[6], and anecdotal records. In addition, the literature mentions the ubiquitous number games which involve counting student visitations to the center[1, 6] and student use of center material[2]. These methods are an important segment of justification, but we must proceed from intuition and opinion to data collecting and evaluative research. Levinson[7:1, 4] stated, ". . . we are not reporting enough of the evaluation and research studies our discipline needs so desperately." She continues, "we must . . . show our administrators and faculty from other disciplines that our techniques and applications result in more students successfully completing academic careers."

A study conducted Winter Quarter 1979[4] investigated academic achievement and affective adjustment as a function of learning center peer tutoring. Statistics students interested in receiving tutoring were divided into low, medium, and high grade point average groups. There were 50 students in each of the three groups; 25 were randomly assigned to the experimental tutoring condition and 25 to the non-tutoring control condition. Students in the tutoring condition received a minimum of three hours and a maximum of five hours of tutoring per week for the ten week quarter. Dependent variables were final grades in statistics and scores on the *Profile of Mood States Questionnaire*. Results suggested that peer tutoring did effect positive change in academic achievement and affective adjustment in students with varying ability levels.

The next logical question to be addressed involves the number of hours of tutoring necessary for maximum results as measured by final course grades. This replication of the 1979 study attempts to answer that question. In addition, this study utilizes an additional control group in order to control for motivation. The two control groups are 1) students interested in receiving tutoring but not receiving tutoring and 2) students not interested in receiving tutoring.

Method

Subjects. The subjects were 180 California State College, San Bernardino, undergraduate students (92 males and 88 females) enrolled in Introductory Statistics during the Fall Quarter, 1980. Subjects were divided into three groups of sixty students each by the utilization of their previous grade point averages (GPAs): low GPA (<2.37); medium GPA ($\geq 2.37 < 3.31$); high GPA (≥ 3.31). Fifteen of the 60 students in each group were randomly assigned to three tutoring conditions: tutoring interest but no tutoring received; one to three hours of tutoring per week; four to six hours of tutoring per week. The remaining 45 students in each group were assigned to the no tutoring interest group.

Procedure. Each tutoring session was constructed to meet the individual requirements of the student. The typical deficiencies included a lack of mathematical background, a negative attitude toward statistics, math and/or test anxiety, and a lack of test-taking strategies and study skills. Tutors had a background in the subject to be tutored, a minimum of a B average in statistics, good listening and communication skills, and general counseling skills. All tutors were paid. Professors teaching statistics had similar teaching methods and used the same grading system. The dependent variable utilized to evaluate the effectiveness of number of hours tutored was final course grades in Introductory Statistics.

Results

The two-way Analysis of Variance (GPA $\times$ tutoring condition) rejected the null hypothesis ($p < .01$) — there is no significant difference between students receiving various amounts of tutoring on their final statistics course grade, regardless of previous GPA. (See Table 1). The Least Significant Difference multiple comparison of means test[5] indicated that, within each GPA group, those students who received one to three and four to six hours of tutoring per week received significantly higher final statistics grades in contrast to grades of the groups that received no tutoring ($p < .01$). In addition, within each GPA group, there was no significant difference in final statistics grades between students receiving one to three hours of tutoring per week and those receiving four to six hours.

TABLE 1

Analysis of Variance Summary Table

Source	Sum of Squares	df	Mean Square	F
Tutoring Condition (A)	15.86	3	5.287	34.556*
GPA (B)	26.64	2	13.320	87.059*
A × B	1.95	6	.325	2.124
Error	25.65	168	.153	
Total	70.10	179		

* $p < .01$

Discussion

These results suggest that tutoring is an effective means of assisting students with low, medium and high GPAs in achieving higher course grades in statistics. Those students who received one to three hours and four to six hours of tutoring per week for the academic quarter demonstrated significantly higher final statistics course grades when compared to students interested in, as well as those not interested in, receiving tutoring. Tutoring in the amount of one to three hours per week appears to be as effective as four to six hours per week for the statistics course. The economical aspect of this result is rather obvious. Further research is necessary to determine if this result is applicable across other subject areas as well. In addition, longevity effects of tutoring should be investigated.

Past researchers have alluded to the idea that those students who are interested in receiving tutoring are motivated differently from students not interested in receiving tutoring. This motivation factor has been credited for the tendency toward higher course grades rather than tutoring itself. The current results do not justify the motivation factor as being the singularly critical factor in that two of the groups in each GPA condition did not receive tutoring; one of these groups was interested in receiving tutoring while one was not.

Since an introductory statistics course is a degree requirement in many majors, i.e., psychology, sociology, administration, business, education, and since many students suffer from math phobia, learning centers must offer students assistance with statistics. Some students have avoided certain degree areas because of the statistics course requirement. This tutoring technique has been successful in assisting students to meet their statistics requirement.

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THE EFFECTS OF COMPUTER ASSISTED INSTRUCTION IN A COMMUNITY COLLEGE LEARNING LAB

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At the University of Hawaii-Hilo/Hawaii Community College Learning Lab, a computer assisted instructional program has been in operation for one and a half years. PLATO (short for Programmed Logic for Automatic Teaching Operations) through its Basic Skills Learning System component provides a wide range of individualized drill and practice lessons in basic reading, math, and writing.

The purpose of this presentation is to provide information on the effectiveness of using an individualized computer assisted instructional program on students with basic skills deficiencies in reading and math.

Lab overview

The Learning Lab's operating principle is "The services of the Learning Lab will be directed toward providing as many options as possible for students to develop the self-confidence, motivation, and learning skills necessary for success in the academic program of their choice."

Learning Lab goals are divided into two areas, affective and cognitive.

Affective goals:

To develop students self-confidence and motivation.

To make students aware of the personal interest and concern that faculty and staff have for them.

To assist students in making appropriate educational and career decisions.

Cognitive goal:

To assist students in developing learning skills to achieve satisfactory academic progress in programs of their choice.

Following the acceptance of these general Lab goals, the staff of the Learning Lab identifies specific objectives which provide learning assistance

to students enrolled in reading, writing, math, and English as a Second Language courses, and to self-referred and instructor referred students. These objectives are as follows:

To provide diagnostic services.

To provide tutorial assistance.

To provide materials and activities to supplement and complement classroom instruction.

To provide materials and activities to meet individual student needs.

Multiple options are available to assist students in achieving their educational goals. They range from more to less independent work:

Completely independent work using a variety of Lab media supervised by Lab staff.

Independent work and consultation with a tutor.

One on one work with a tutor.

Direct student-instructor interaction and supervised work.

Placement of students into one of the available work options is dependent upon the assessed preferred instructional mode. Students whose preferred learning modes are listening, visual, reading, etc. have the following media/equipment available: PLATO, controlled reader, filmstrip-tape sets, slide-tape sets, language masters, reading kits, etc.

Students whose preferred learning modes are person-dependent have available a range of staff: tutors, instructors, and lab staff for regular one on one and/or small group instruction.

Computer project

The PLATO computer program originated at the University of Illinois. The Control Data Corporation supplies the terminals and access to the Basic Skills Learning System package. The project is funded through a federal Strengthening Developing Institutions Program grant (SDIP).

The PLATO program is designed to help people lacking skills in basic math, reading, and language. Using these computer lessons and supplementary booklets, learners can increase their competency to the ninth grade level. PLATO diagnoses and routes students through troublesome areas and charts their progress automatically. It provides immediate positive feedback on a student's response and personalizes the lessons by displaying the student's name and graphic images of the student's progress.

The PLATO basic skills program is modular in nature and includes small units of instruction as in a specific math computational skill, a reading skill, etc. PLATO is also objective based, in that students begin with the simplest objectives and progress to the most complex.

Students are generally assigned to PLATO if their placement test score falls below the 25th percentile on the *Reading Placement Test* (College Entrance Examination Board). Within the context of the student's course

work, PLATO lessons are part of the required lab work but PLATO does not supplant regular course work, it is only supplementary in nature. The amount and length of time a student spends on PLATO is determined by the instructor but students are free to set their own PLATO work schedule.

The availability of tutor assistance is crucial to the success of the PLATO program. There are many instances where the availability of tutors to solve minor problems and answer questions has helped students overcome initial apprehensiveness about PLATO. Tutors can guide students through operating and selecting PLATO lessons in addition to solving problems that arise. Tutors also assist by logging and reporting on all students' progress weekly. And tutors can add a personalized touch by writing positive morale boosting notes to students via the PLATO note system. Even though tutors are available on a regular basis, instructors are encouraged to monitor their own students progress.

In relation to math courses, students are assigned to PLATO lessons at the discretion of the instructor. PLATO math lessons are used only as a supplementary resource, they do not supplant the regular math lecture-textbook assigned material. All math students are expected to work on PLATO sometime during the semester. Monitoring of students is done by the individual instructors.

Evaluation

In a given semester, some 300 reading and math students utilize the PLATO basic skills program. For evaluation purposes, control and experimental groups were identified as Non-PLATO (no computer use) and PLATO (minimum four hours of computer use). The evaluation data was gathered over two semesters, Spring, 1980, and Fall, 1980. It might be noted that the purpose of the data evaluation was to measure the impact of PLATO on attitudes toward learning rather than impact on reading and math achievement level *per se*.

The specific data is as follows:

Spring 1980

Reading	PLATO	Non-PLATO
Course completion	90%	62%
Retention	84%	74%
Math	**PLATO**	**All Math Students**
Course completion		
Math 001X	100%	72%
Math 001Y	95%	66.6%
Math 001Z	62%	39.9%

Fall 1990		
Reading	**PLATO**	**Non-PLATO**
Course completion	85%	74%
Retention	100%	97%
Math	**PLATO**	**All Math Students**
Course completion		
Math 001X	100%	87%
Math 001Y	87%	53%
Math 001Z	60%	43%
Retention	96%	99%
AVERAGE GPA	2.58	2.39

The initial results are positive. The course completion rates improved by as much as 28%. Student persistence rates from one semester to the next improved by as much as 10%. In addition, 85% of students expressed positive attitudes toward PLATO as an instructional resource. Over 80% of the students agreed that PLATO increased their interest in reading. It is seen then, that PLATO is looked upon by "high risk" students and their instructors as a positive influence on student performance.

Summary

Even though the statistics may not prove conclusively that PLATO has a significant impact on learning, instructors generally feel that it is a definite attention getter, motivator, and stimulant to student interest.

Because of the nature of PLATO, its ability to reinforce students positively on a continual basis, its definite patience, and its repetitive lessons and explanations, there is no other instructional medium that can do what it does.

VALIDITY STUDIES OF THE MINNESOTA READING ASSESSMENT: A NEW READING TEST FOR POST-SECONDARY PROGRAMS

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The purposes of this paper are threefold. First, it will present a brief summary of the development and standardization of the Minnesota Reading Assessment. Second, it will discuss the topic of selecting an appropriate measurement instrument in reading, matching the characteristics of tests to the purposes for which testing is to be done. Finally, it will present data relevant to the reliability and validity of the *Minnesota Reading Assessment*, together with some discussion of appropriate and inappropriate uses of it.

The *MRA* is designed for administration to students in community colleges, business schools, technical schools, and other secondary and post-secondary training institutions. It is intended to measure the students' competence in those reading skills which are most relevant to school success. The test, available in two forms, A and B, measures Reading Rate and Retention, Vocabulary, and Paragraph Comprehension. Working time is forty minutes.

The *MRA* was developed to provide information that would identify students who are in need of remedial assistance. The stimulus materials in the test are especially selected so as to be real-world oriented, vocationally relevant content. The difficulty level is such that the test will discriminate best on the students in the lower portions of the distribution, where judgments about remediation are usually made.

Normative information is provided on (1) students in vocationally oriented programs, (2) students in community colleges, (3) students in four-year colleges, and (4) hearing impaired students.

The instrument was developed using standard techniques for achievement tests. A scope and sequence plan was developed, and items prepared for tryout. 524 items were written and assembled into several packets to prevent having to administer large numbers of items to students. With the cooperation of the State Department of Vocational Education, the original items were tried out, edited, and prepared into six sets of items which were administered in several locations in secondary and post-secondary programs in Minnesota. About 600 students were involved in this stage of development.

In additional tryouts, the retention items and the paragraph comprehension items were administered without the reading, to determine which items might be answered without the reading, and which were passage dependent. 160 students were involved in such tryouts.

Finally, items for use in the final versions of the test were selected using the following kinds of information:

1. Item type and content, based on the original test plan.
2. The ability of the item to discriminate between high and low-scoring students in the Post-Secondary sample.
3. The ability of the item to discriminate on the Secondary sample.
4. Item difficulty level on both Secondary and Post-Secondary levels.
5. In the case of the Rate and Retention items and the Paragraph Comprehension items, success rates by students who had not seen the passage on which the items were based.

In addition to the kinds of information listed above, items were examined to be sure that very similar items were avoided. On the Paragraph Comprehension part of the test, items had to be selected in clusters relevant to the reading passages.

Readability

The passages used as stimulus materials were screened before items were written for tryout. The readability as measured by the Raygor Readability Estimate was approximately sixth grade level for the two stories in the Reading part. The readability ranged from seventh grade to college level on the passages tried out in the Paragraph Comprehension part. The readability levels of the passages selected for the final forms of the Paragraph Comprehension part ranged from seventh grade to college level, with most passages at eighth to tenth grade difficulty.

Normative information

The *MRA* was administered to four reference groups:

- Reference Group I represents students in post-secondary vocationally oriented educational institutions.
- Reference Group II represents students in community colleges.
- Reference Group III represents students in four-year colleges and universities.
- Reference Group IV represents hearing impaired students enrolled in post-secondary higher education programs. (These special samples of hearing impaired students were obtained by Ms. Laurie Johnson, Counselor for Hearing Impaired Students, University of Minnesota.)

Before looking at the reliability and validity data relevant to the *MRA*, a brief discussion of some testing "facts of life" is in order. First of all, it should be recognized that no one reading test will be "best" for all purposes. For example, a test that would be the best possible one to identify the problems of beginning readers would be nearly worthless for measuring the progress of a group of college readers. A test with content appropriate for surveying the skills of law school student would not be appropriate for use on students in a vocational-technical institute.

Without going into detail about the intricacies of content validity, concurrent validity, predictive validity, and construct validity, it is nevertheless useful to look at some issues in test selection. One major issue has to do with the *purpose for which test data will be used.* For individual diagnosis and prescriptive purposes, a test should provide some differentiation of sub-skills. On the other hand, for general program evaluation, diagnostic power is not a prime consideration. On this issue, most reading tests are a compromise, with some diagnostic features and a total score that can be used for survey purposes. There are some exceptions, however. The *S.T.E.P. Reading Test* is one long paragraph comprehension test, as is the new *College Board Reading Test.* Both are excellent instruments for survey purposes. On the other hand, the *Stanford T.A.S.K.* is a purely diagnostic instrument, and doesn't even have a total score. It is an excellent test for diagnostic purposes. Most other tests appropriate for use at the post-secondary level have some sub-scores to aid in diagnosis and a total score indicative of general skill in reading.

Another major characteristic to be considered when selecting an instrument is the *appropriateness of the content.* Most of the reading tests used at the college level are oriented toward the content of college level social sciences and humanities textbooks. These content areas are very appropriate for predicting performance in traditional liberal arts curricula, and are well designed for most entrance survey testing, especially in selective institutions. On the other hand, for students in less selective, less traditional, and more vocationally-oriented programs, the content of most currently used tests seems to the student to be inappropriately literary, esoteric, and out of touch with materials that they want to read and study.

The other primary characteristic that is critical in the selection of a test, is the *level of difficulty.* There is probably more confusion about the relationship between test difficulty and appropriate use than there is about the other factors already discussed. In order to understand the role of test difficulty better, let's consider two extremely different tests and two extremely different purposes. Test One is extremely easy, with stimulus materials at about first or second grade readability, and comprehension questions that require only the simplest level of understanding. Test Two is made up of extremely difficult theoretical passages characteristic of graduate school textbooks, with comprehension questions that will challenge the best possible reader.

If you are trying to determine whether an adult in a community program should begin in an Adult Basic Literacy program or in a slightly more

advanced remedial program, which test would you use? If you are the chair of the Scholarship Committee selecting a college graduate for a doctoral program, which test would you use? In these extreme cases, the answer is easy, but let's look at why the easy test is not the right one for high level readers and the difficult test is wrong for the semi-literates. The answer lies in the ability of the test to discriminate within the population on which it is used. If all of the students taking the test answer all of the items correctly or none of the items correctly, they will all get the same score, and the test will have been useless.

Anything which increases the variability in scores in a test will generally increase the utility of the test for the group being tested. If each item on the test is doing its job, it will divide the students into good and poor readers. Thus, the test on which a student gets about half of the items correct will discriminate best for that student. Since no text is designed to discriminate only at the mean, it is important to have a range of item difficulties to be sure that there will be appropriate discriminating items for students at various levels.

One of the problems with so-called wide-range tests is that the difficulty of items is so variable that the test is presumably appropriate for students ranging from perhaps sixth grade through four years of college. One or two such instruments purport to measure even broader, "cradle to the grave" bands. A little thought about the proportion of items that will really work for any given level will reveal the weakness in such measurement efforts.

Now let's consider the implications of this discussion of difficulty level for the selection of a test for use in a post-secondary reading program. If the purpose of testing is to predict performance in a highly demanding curriculum in which the students have already been selected for high ability, the best instrument will be one with a high item difficulty level. If the purpose is to select students for an honors program, the test should be even more difficult.

On the other hand, if the testing is done to identify students who are in need of remedial help or placement in a developmental basic skills program, the test should be made up in a way that will discriminate best at the low levels of performance. That means variety of item difficulties, but with an emphasis on easy items that will work well on poor readers.

Sometimes the use of an appropriately easy test will cause concern on the part of faculty because the test is perceived as "too easy." I recently worked with a faculty person in a vocational school who had used the *Gates Survey E* to identify students who needed help. She found when the grade level scores were assigned that more than half of the students were at or above 12.9, the highest possible level. It would be easy to conclude that the test was "too easy" for the students. However, a look at the scores on the students who were the primary targets of the measurement shows that for those who were weak in reading, the scores were down in the 8 to 10th grade range and the instrument was a very appropriate one.

Studies of the Minnesota Reading Assessment

To get to the main part of this paper, we can now look at the testing considerations considered in relation to the *MRA*. First of all, it is designed with some sub-scores and a total score. The total score is a reasonably good general measure of reading skill, and the sub-scores give information about Rate, Retention, Vocabulary, and Paragraph Comprehension.

Second, the content of the test is most appropriate for students in real-world oriented, vocational fields. It is not heavily slanted toward literature and humanities. Thus, it will have content appropriate to vocationally oriented students, and not for traditional liberal arts curricula.

The other major difference between most tests and the *MRA* is that it is designed to discriminate best at low levels of skill, and will be quite easy for many students. For this reason, it would be very appropriate for use in programs where it is important to identify the students with weak reading skills. It would not be appropriate for use in a highly selected student population, where poor readers would have already been selected out.

To illustrate this difference in difficulty, some data comparing it with the *Nelson-Denny Reading Test* will be useful, since the *Nelson-Denny* is probably the most difficult reading test now widely used. In a study done by Dr. Rona Flippo at the University of South Carolina, students took both the *Nelson-Denny* and the *MRA*. The students tested were in a General Studies Developmental Program. Dr. Flippo looked at the proportion of students who answered correctly more than half of the items. (Remember, a test discriminates best on such students.)

On the vocabulary tests, 10% of the students answered more than half of the items correctly on the *Nelson Denny*. On the *MRA*, 86% answered more than half correctly. On the paragraph comprehension score the results were similar, with the respective percentages at 34% on *NDRT* and 92% on the *MRA*.

Thus, the *Nelson Denny* turned out to be much too difficult for the students who needed help. (In fact, many of them achieved scores no better than chance!) The *MRA* scores demonstrated a level of difficulty appropriate for the weak readers in the group.

Reliability

Table 1 shows several reliability estimates computed from the data gathered at the University of South Carolina by Dr. Flippo.

Interform reliability was studied in testing by Jane Hendrickson at the University of Wisconsin, Stout, at Menomenie, Wisconsin. Twenty-four students took both forms of the test. The interform reliability for the Total Score was .82, and the sub scores were as follows: Rate = .76, Retention = .53, Vocabulary = .83, and Paragraph Comprehension = .57.

TABLE 1

Reliability

	Form A	Form B
Gronbach's Alpha	.917	.934
Horst Modified	.924	.941
Kuder Richardson 20	.917	.934
Kuder Richardson 21	.900	.920

Concurrent validity

In the study done by Dr. Flippo at the University of South Carolina, correlation between the *Nelson-Denny Reading Test* and the *MRA* were computed. The results are shown in Table 2.

TABLE 2

Correlations Between the Nelson Denny Reading Test and the Minnesota Reading Assessment, Form A and Form B

Nelson-Denny Reading Test	*Minnesota Reading Assessement Form A*, N =53				
	Rate	Retention	Vocab.	Para. Comp.	Total
Rate	.42	.11	.07	.01	.08
Vocabulary	.34	.11	.39	.37	.41
Comprehension	.21	.24	.34	.47	.42
Total Score	.31	.21	.34	.47	.42

	Form B, N =48				
	Rate	Retention	Vocab.	Para. Comp.	Total
Rate	.39	.17	.10	−.01	.03
Vocabulary	.47	.18	.54	.15	.48
Comprehension	.42	.45	.51	.50	.61
Total Score	.52	.36	.61	.37	.62

In the same study, students were given the *Stanford Diagnostic Reading Test*. The correlations resulting are shown in Table 3.

TABLE 3

Correlations Between the Minnesota Reading Assessment, Form A and B, and the Stanford Reading Test

Stanford Reading Test	*Minnesota Reading Assessment Form A*, N = 44				
	Rate	Retention	Vocab.	Para. Comp.	Total
Literal Comp.	.32	.24	.25	.57	.40
Inferential Comp.	.44	.08	.27	.54	.35
Word Meaning	.18	.24	.51	.53	.57
Word Parts	.08	.01	.29	.20	.26
Phonetic Analysis	−.09	.10	.20	.33	.26
Structural Analysis	−.01	.05	−.02	.09	.03
Scanning and Skimming	.03	.15	−.08	.24	.06
Fast Reading	.07	.25	−.02	.08	.08

	Form B, N = 45				
	Rate	Retention	Vocab.	Para. Comp.	Total
Literal Comp.	.56	.58	.50	.49	.63
Inferential Comp.	.48	.38	.51	.43	.57
Word Meaning	.49	.49	.74	.54	.80
Word Parts	.20	.38	.42	.40	.50
Phonetic Analysis	.25	.25	.39	.39	.44
Structural Analysis	.04	.38	.31	.48	.44
Scanning and Skimming	.43	.39	.41	.38	.49
Fast Reading	.19	.28	.21	.11	.25

In a study by this author at the University of Minnesota, the *MRA* was compared with the *McGraw Hill Reading Test*. The results are shown in Table 4.

TABLE 4

Correlations Between the MRA and the McGraw Hill Reading Test

	N	r
Form A	59	.72
Form B	63	.82

In another study at Lakewood Community College in White Bear Lake, Minnesota by Peggy MacRae, seventeen students took Form A of the *MRA* and Form C of the *Nelson-Denny Reading Test*. The total scores correlated at .79.

Predictive validity

In addition to the studies reported above, in which the *MRA* is correlated with other existing reading tests, some efforts are being made to determine the utility of the *MRA* in predicting performance. Several studies are under way, and two have been completed.

In a study at Willmar Community College, in Willmar, Minnesota, eighty-one students who took the *MRA* at entrance were followed up by James Fehr to determine which of three measures best predicted grades in English courses. The three measures were the *MRA*, a locally developed English Placement Test, and the recently developed *Descriptive Tests of Language Skills—Reading*, by the College Board. Mr. Fehr found correlations between the English grades and each of the three tests as follows: The English Placement Test, .38; the College Boards *Descriptive Tests of Language Skills—Reading*, .52; and the *MRA*, .58. He concluded that the *MRA* was the best predictor of grades, and recommended replacement of the English Placement Test by the *MRA*.

In another study at the Brainard Area Vocational Technical Institute, Judy Barklay examined the relationship between the *MRA* and later performance (GPA) of students in a vocational program. She found that for thirty-nine students who had taken the *MRA* at entrance, the correlation a year later with grades was .46. She was also able to correlate the *MRA* with parts of the *Gates Survey E*, and found that for the same students the two vocabulary measures correlated at .64 and the two comprehension measures correlated at .85.

Summary

The Minnesota Reading Assessment seems most appropriate for use in situations in which testing is done to identify weak students. It is not recommended for use in identifying unusually skilled readers. The level of difficulty is ideal for discriminating at the lower skill levels. Reliability is adequate for individual as well as group testing. Validity for specific testing purposes will have to be a judgment by potential users, but the test has shown high correlations with other reading tests, and moderate to high predictive value.

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CREDIBILITY THROUGH ACCOUNTABILITY IN A COMMUNITY COLLEGE READING PROGRAM

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Presently, America is in a "back to the basics" attitude because of nation-wide declines in student literacy. Isaac Asimov[1:19] refers to American society as a "cult of ignorance" because of our apparent anti-intellectual mood for the past twenty years. I do not push for elitism, but I do expect that a community college graduate can read. As educators, we have stated to the public that "learning is the key to life." I submit that we are wrong. Competence is the key to life! And, without the ability to read fluently, one major avenue to any competency is blocked. Developmental educators provide competence and everyone must be told.

Problem

Reading professionals responsible for the defacto education of disadvantaged students have been reticent, or simply have not been willing, to report to the "significant others" research which proves the efficacy of their programs. Levinson[2] points out that both administrators and faculty want proof.

Credibility and accountability need not be feared. We know that what we do has a positive impact on our students. We need to report it. If we are facilitators of instruction, then, also, we are facilitators of information. We must manage our resources like ad men. Administrators and faculty are marketing targets to be manipulated by the illusion that they are persons who decide for themselves. We must become soft-sell hucksters — sources of quick, effortless, and useful information on what is so good about our developmental programs. Administrators and faculty must depend on us. That dependency is arrived at by periodic reports on profitability:

1. How do "poor readers" perform in college courses?
2. Does the college/community benefit from allowing its students the freedom to make "real" academic/career decisions even though past perfor-

mance and basic literacy assessment strongly suggests alternative courses of action?

3. Do students who successfully complete reading improvement courses succeed in academic areas?

The answers to these questions are the "stuff" with which we must concern ourselves. One need not be a research specialist nor utilize dissertation trivia of chi square, *t*-test or regression-discontinuity design. We are not Harvard. We are not mini-universities. We are practitioners working with real people with real problems. Always — be pragmatic — write reports, report trends. Remember, the target audience of your information is *not* statistically sophisticated either.

Design

Eastfield College has a majority of excellent students and very good readers. But, too many "poor" readers matriculate into all college courses. This research project deals with attrition / retention / recruitment of "poor" readers. Poor readers are those students ranging from severely handicapped clinical cases to those students reading four years or more below grade level.

Through a computer search and retrieval, the project systematically tracked and compared, for two years, new students at Eastfield College who in the Fall of 1978 scored below 9.0 grade level on the *Nelson Denny Reading Test*, Form C, Comprehension Subtest, during assessment/advisement prior to registration. The students thus identified were separated into two categories:

Didders — Those students who *did* take a reading improvement course as well as other courses as the assessment/advisement suggested.

Notters — Those students who did *not* take a reading improvement course but, rather, went directly into the regular college curriculum even though assessment/advisement suggested a real need to improve basic reading skills.

Selection results

Only those students who took the assessment of basic skills at Eastfield College and had counselor advisement prior to registration were selected for this study. Students from April 10, 1978, through August 14, 1978, were included. Although many other students took the assessment package during Fall, 1978, they were not included because they did not have adequate skills information prior to registration. Of the 2,691 students assessed, only 898 students received scores with the advisement process prior to registration.

Students who took assessment after registration	1793	66%
Students who took assessment prior to registration*	898	34%
Total students	2691	100%

Nelson Denny score above 9.2 reading grade level	586	66%
Nelson Denny score below 9.0 reading grade level*	313	34%
Total students	898	100%

Nelson Denny score below 9.0 grade level, Didders	103	33%
Nelson Denny score below 9.0 grade level, Notters	141	45%
Assess/advise but not registered*	69	22%
	313	100%

Discussion

Three immediate problems were easily identifiable. The first was 66% of the students did not go through assessment/advisement before registration and hence could not make real choices about their skills as related to the courses they selected. The second problem was only one-third of the students who were suggested to improve their reading through the assessment/advisement process acted on that suggestion. The third problem was the "loss" of 69 poor reading students who never came back to enroll at Eastfield College. These 69 students had already invested time in several visits to the campus, i.e., application to the college, several hours undergoing assessment and counselor advisement. Their scores were low enough that they could not have matriculated into the university system.

The institution truly lost 69 potential students because of the "time delay" of assessment/advisement and registration. If these students had enrolled in coursework which included a reading improvement course, Eastfield College could have expected to realize an additional 38,419.2 contact hour funds, or a projected increase of approximately $115,257.60.

Equally important, Eastfield would have educationally salvaged these students to be even more productive members of our community. The efforts of institution and faculty recruitment were undermined when closure was not provided in a timely way. The humanism and student centeredness we projected was lost for all intents and purposes when the student's commitment was delayed by days, weeks, months waiting for registration to "happen."

Tracking results

Once the appropriate students were selected, a computer search of each student's transcript was accomplished. The retrieved transcripts tracked each student from Fall, 1978, through Fall, 1980. An analysis for comparison between Didders and Notters in terms of semester hours attempted, semester hours completed, persistence rates, attrition rates, and overall grade point averages was performed. Likewise, a computer search and retrieval was accomplished on grade level readers' performances in each area for purposes of comparison.

	Grade Level Readers	Poor Readers	
		Didders	Notters
Average hours attempted	9.2	8.7	5.7
Average hours completed	7.4	6.4	3.3
Average persistence rate	80%	74%	58%
Average attrition rate	20%	26%	42%
Average GPA	3.0	2.9	2.6

Discussion

The students who needed to improve their reading skills and pursued a corrective mode by selecting to take a reading improvement course as part of their regular course of study significantly outperformed their peers who needed reading but chose to go headlong into academic coursework. It is important to note that the Didders averaged almost a three-quarter time FTSE load for two years while the Notters averaged less than one-half time FTSE in the same period. Poor readers who did take a reading improvement course performed as well as grade level readers in college coursework. It seems that skills taught in reading improvement courses allows even poor readers to compete successfully in academic and technical courses. But, poor readers who do not take reading improvement courses attempt less courses and complete less coursework. It appears that the less well a student reads, the less coursework he attempts.

The attrition rates also explain Eastfield's retention problem. The students who needed to improve their reading and didn't, dropped 42% of their coursework over the two year period. The students who did improve their reading successfully persisted through their coursework 74% of the time and with good grades. The grade level readers' performance as relates to persistence and attrition seem at parity with the Didders. However, poor readers who did not take a reading improvement course were left far behind.

The difference in semester hours attempted between the Didders and Notters represents approximately $100,000 lost through contact hours by

Eastfield College because of a lack of pro-active academic intervention strategies. Studies by Roueche[3] and others indicate that students reading two years or more behind grade level are 50% unsuccessful in college. Eastfield is very close to his warning. An additional $115,000 was lost because students who went through application / assessment / advisement did not show up to register for any courses — the right ones *or* the wrong ones!

Conclusions

The reading improvement courses offered at Eastfield provide academic assistance to poor readers allowing them to gain success in college coursework. The reading program is fulfilling the mission and goals for which it was established. However, Eastfield College's present procedures in dealing with poor readers during the assessment/advisement phase sets the stage for high attrition, loss of students in recruitment, the forfeiture of thousands of contact hour funds, and the deprivation of students' right to an education. The advisement policy toward students is the embodiment of the Spanish proverb, "Take what you want — and pay for it." To me, the price we extract from our underprepared students is far too high! It is unethical to allow any student to make choices that will kill any chance for success. We must provide opportunities, not problems.

Implications

Reliable evaluative data can be collected and reported without the super-sophisticated statistical strategies discussed by Trillin[4] and others. Answers to simple but extremely important questions regarding the efficacy of reading programs can be answered by any reading professional. We have always collected data — we simply have not taken the next step, which is to write it up. For too long we have relied upon administrators and faculty for support — now they must rely on us. Indeed, we are charged with proving the worth of our programs. It can be done with limited time and energy!

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EVALUATING COLLEGE READING PROGRAMS: AN AFFECTIVE APPROACH

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The effectiveness of college reading programs is usually evaluated in terms of cognitive aspects: gains on standardized reading tests, subsequent academic success (grade point average or individual course marks) or attrition information. Although those of us teaching in the field believe our programs are working, research findings do not consistently substantiate our feelings and intuitions. Staley and Smith[4:185], using four cognitive criteria to evaluate a college reading program, concluded, "Perhaps measures of the affective quality of reading improvement programs may be more appropriate than strictly cognitive concerns." Developing positive attitudes toward reading is a goal pursued by all reading educators and an area which researchers have been increasingly addressing during the past decade. Is it possible to accurately measure attitude toward reading, and can attitude be altered significantly in a more positive direction by a reading and study skills course? The primary purpose of this study was to determine whether a more positive attitude toward reading is an outcome of a college reading program.

Various affective measurement devices have been developed and are readily available to the reading teacher and researcher. Vaughan, Jr.[7] strongly emphasizes careful scrutiny of the instruments for acceptable construct validity, and Summers[5:139], in a comprehensive review of attitude measures published between 1960 and 1976, concludes that many of the measures are of questionable validity. In developing a definition of the construct Summers[5:139] concludes, "The presence of attitude toward reading can be inferred from various behavioral samples. Attitudes held by a person toward reading will tend to cause that person to notice things and do things selectively." A multi-measurement model outlined by Reed[3] combines self-reporting questionnaires with unobtrusive nonreactive methods for measuring affective responses to reading. After available scales for the post-secondary level were analyzed, the *Mikulecky Behavioral Reading Attitude Measure* was chosen for this study. It appears to have been carefully developed, adequately normed, and validated in recent studies with college students.

The relationship between attitude and reading achievement continues to interest researchers. A recent, province-wide assessment of reading instruction in British Columbia[6,4] found a correlation of .42 between attitude towards reading and achievement at the Grade 12 level, but the authors caution, "Ambiguity in the literature should suffice to establish sufficient caution in interpreting these data." When these two variables were investigated using a college population, a correlation of .4356 was found between scores on the *Mikulecky Behavioral Reading Attitude Measure* and the *Nelson-Denny Reading Test.*[1] In addition, students with good reading abilities seemed to have better attitudes toward reading than college students with poor reading abilities. A secondary purpose of this study was to further investigate the relationship between attitude and reading achievement.

Method

Subjects. 182 students enrolled in reading and study skills courses at Vancouver Community College — King Edward Campus, College Foundations Division, during Summer and Fall 1980. The College Foundations Program is an Adult Secondary Program, and upon completion, students earn a Grade 12 equivalency certificate. Grade 11 credit is granted for the reading and study skills courses. Complete data were available for 111 of the 182 students who registered for the reading courses.

Instrument. A reading attitude measure developed, field tested, and normed by Mikulecky[2] was used to gather data for the study. The *Mikulecky Behavioral Reading Attitude Measure (MBRAM)* is a self-report measure consisting of twenty statements, each briefly describing a specific behavioral situation pertaining to everyday human interactions related to reading. The student responds to each item on a five-point scale between the poles of VERY UNLIKE ME and VERY LIKE ME.

Procedure. The *Gates-MacGinitie Reading Test*—Survey F was administered to all entering students and used as an instrument for placement into the two reading courses. Students with a raw score of 80 or higher were placed in the more advanced reading improvement course. Four advanced sections were among thirteen sections instructed by four different reading and study skills teachers offered during the eight-month time period of this study. At Vancouver Community College, course objectives and requirements are set by the department, and within those guidelines, each instructor selects from a vast array of materials and determines method of instruction and presentation.

The *MBRAM* was administered to all students during the first week of the course and repeated as a posttest measure during the last week of the course. *Gates-MacGinitie Reading Test* scores were used to assign students to three reading achievement levels (low, middle, and high).

A two by three factorial design with repeated measures on the first factor

was employed to examine the subjects' attitude toward reading before and after the reading course across the three levels of reading achievement.

To investigate the relationship between attitude and achievement, students' raw scores on the reading achievement test and on the attitude measure were correlated using the Pearson Product Moment Formula.

Results and discussion

A two-way analysis of variance for repeated measures was performed on the *MBRAM* scores, with the reading achievement groups serving as the second factor. Scores on the postmeasure were significantly higher than those on the pretest, $F(1,108) = 31.31, p < .001$, with the students obtaining a mean score of 64.69 on the pretest and 70.50 on the posttest. When these mean scores are compared with "normal" or expected *MBRAM* scores reported by Mikulecky[2:95] both scores are in the "above average" range. This indicates that the students entered the course with a positive attitude toward reading and left with an even more positive attitude.

On the second factor, the reading ability variable, no statistically significant differences were revealed, nor was there a significant interaction. Visual inspection of the mean scores for each group (see Table 1) reveals that the mean score for each group is increased on the posttest. Mean gains also consistently increased for each higher reading ability level, but not enough to be statistically meaningful.

TABLE 1

MBRAM Mean Scores and Standard Deviations
by Reading Achievement Level

	Pretest		Posttest	
Reading Level	Mean	S.D.	Mean	S.D.
Low	63.76	17.06	66.76	15.19
Middle	63.44	14.66	69.44	14.43
High	67.09	15.58	75.63	16.15

A relatively low positive correlation ($r = .19$) was found between students' reading scores and their attitude scores on the pretest measure, indicating only 4% shared variance. Although this correlation is lower than expected, and lower than correlations reported by Irwin[1] and Tuinman and Kendall[6], it tends to confirm Mikulecky's[2] claim that reading attitude, as measured by the *MBRAM*, is a construct separate from reading competency.

Results of this study indicate that students' attitude toward reading did increase positively during the four month reading and study skills course. Also, initial reading attitude was positive, and was not closely related to

reading ability. Only speculative explanations for these results can be offered. Probably the adult returning to complete high school values education highly, and hence feels positive about reading even though his reading needs improvement—a fact which must be evident to him, and which he has taken steps to remedy by enrolling in the reading course. The fact that attitude becomes more positive by the end of the course invites further speculation. This increase might reflect the positive influence of an exceptional reading course which combined interesting and worthwhile content with an effective personalized approach. This study demonstrates that a more positive attitude is a measurable outcome of a reading and study skills course; however, much additional research is needed to identify variables which contribute to attitude change.

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SCHEMA INSTANTIATION AND ITS EFFECT ON COMPREHENSION AND RECALL OF ADULT PROFICIENT AND NON-PROFICIENT READERS

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Although schema research has become much more a part of the research literature during the past six years, the construct of schema seems to fit well into the progression of gradually more complex models of reading comprehension throughout the history of reading research. If schema research is a valid attempt "to specify the interface between the reader and the text, how the reader's knowledge interacts and shapes the information on the page, and to specify how that knowledge must be organized to support the interaction"[1,5], then it adds a great deal to the understanding of reading as a unique personal, social, psychological, linguistic event. Recent research in schema attempts to explain at least one aspect of this interaction — the cognitive structures which appear to guide comprehension.[3,2,5] Although Thorndyke[18] mentioned research by Schank[14] and Minsky[12] in artificial intelligence and work in memory representations of stories by Stein and Glenn[17], Thorndyke[19], and Rumelhart[13] as the two most important threads of research leading to schema theory, other psycholinguistic and sociolinguistic theory and research provide the necessary framework to view schema theory in its proper perspective — as one aspect of reading comprehension.

Linguists such as Halliday[8] and Bernstein[4] formed one theoretical framework which supports schema research—the social aspects of language. The addition of the social aspects of language was key to the more recent development of a socio-psycholinguistic paradigm.[9,10] This socio-psycholinguistic model of reading comprehension echoes Smith[15,16] and Goodman[6,7] as well as Halliday and Bernstein's social interaction of language.[4,8] This model supports the saliency of the reading process as a cognitive and linguistic interaction between the reader's background and the author's message while exploring the social component of language and setting.

How readers can key in on a particular schema with certain placeholders as hypothesized by Anderson, Spiro and Anderson[3], how they might hold a beginning schema in abeyance or switch schema when the script does not fit

the placeholder slots of their predicted schema, and generally what strategies they might use to comprehend a unique research passage were investigated in this study.

Research design

This study was a descriptive one, attempting to gather information during in-process reading. The subjects were ten proficient (stanines 7, 8, 9 on the *Nelson-Denny Standardized Reading Test*) community college students —five male and five female—and ten non-proficient (stanines 1, 2, 3, 4 on the *Nelson-Denny*) community college students — five male and five female.

Each subject was asked to create a schema or story setting from a list of commonly used words (trim, sheets, pins, cleats, irons, board, class, line, clean, cloth, plane, tack, leg, painter) before reading the research passage. The subjects simply described to the researcher what a story would have to be about to include all the words from the word list. Then, each subject read silently the research passage containing words from this preadministered list. Due to the specific use of these vocabulary items within the passage (the passage was about a sailboat race), the readers tended to predict a schema which did not match the actual context. During the reading, each subject paused after each independent clause within the passage and verbalized thoughts or problems encountered. Finally, each subject retold what was remembered from the passage.

This design was based on the premise suggested by Anderson[2] that reading is essentially hypothesis building which in turn guides perceptual changes. In this sense, the schema each subject verbalized before reading the passage provides expectations which would or would not be met in the passage. The adaptation which would be necessary to comprehend the passage should be mirrored, then, in student verbalizations of problems as they progressed through the passage.

The specific research questions under investigation here were related to the qualitative differences between proficient and non-proficient readers in (1) the number of strategies used to comprehend the passage; (2) in the use of cues in the linguistic setting; (3) in the number of clauses read before the context or author's schema became clear; (4) in the number and characteristics of strategies used once schema instantiation occurred; and (5) in the uninterrupted retellings of the information remembered from the passage.

Analysis

Tape recordings of the protocols made by the subjects during their readings were transcribed. Each protocol was matched with the clause of the text to which it referred. Each protocol was described as to the strategy employed and unit of text information (word-sentence-passage) referenced within that verbalization. All were described through the classification categories of the taxonomy derived from the protocols themselves. Two independent raters

classified four subjects' protocols to establish interrater reliability with a correlation of .85 with the researcher.

Taxonomy Describing Protocols of Readers

1. Engagement in the text
   - 1.0 No response
   - 1.1 Attempt to invalidate
   - 1.2 Pseudo-engagements
   - 1.3 Maintenance of contract
2. Response Rule: Coded only when classification 1 is coded 1.3
   - 2.1 Problem statement
   - 2.2 Capsulations of text information
   - 2.3 Strategy usage
   - 2.4 Other
3. Unit of the problem Rule: Coded only when classification 2 is coded 2.1
   - 3.1 With word
   - 3.2 With sentence
   - 3.3 With passage
4. Semantic problem Rule: Coded only when classification 2 is coded 2.1
   - 4.1 Experience
   - 4.2 List schema
   - 4.3 Previous reading of this text
5. Capsulations Rule: Coded only when Classification 2 is coded 2.1
   - 5.1 Paraphrasing
   - 5.2 Repetition of text
   - 5.3 Relating text information to personal experience
6. Strategies employed Rule: Coded only when classification 2 is 2.3
   - 6.1 Predicting
     - 6.1.1 Word level
     - 6.1.2 Sentence level
     - 6.1.3 Passage level
   - 6.2 Confirming
     - 6.2.1 Word level
     - 6.2.2 Sentence level
     - 6.2.3 Passage level
   - 6.3 Integrating
     - 6.3.1 Word level
     - 6.3.2 Sentence level
     - 6.3.3 Passage level

The taxonomy developed to describe the protocols was derived from the protocols themselves. Its basic framework is similar to the four retelling classifications derived by Kintsch and vanDijk.[11] In order to ensure content validity of the taxonomy, the protocols were divided by three reading specialists into classifications which described the behavior exhibited in the

protocol. The six major divisions of the taxonomy were mentioned by at least two of the specialists; five of the classifications were denoted by all three. The researcher added sub-classifications to gain finer descriptive power.

Using Turner and Green's method of propositionalizing texts[21], the propositions within the text and retellings were organized into a structured list of propositions in order to analyze the matchup between text and recall information.[20] Two independent raters matched retelling propositions with the text of four readers to provide interrater reliability (.96) with the researcher. Then, a comparison was made in the total number of propositions recalled between the proficient and non-proficient readers as groups and between males and females as sub-groups. The percentage of propositions recalled before and after schema instantiation was also compared between these groups. Utilizing the analysis of variance technique to determine those significant differences between groups, the significance level was set at .05.

Findings

While there were obvious differences in the number of strategies used in the proficient/non-proficient and male/female categories, none of these differences was statistically significant. While it was hypothesized that there would be differences in the level of cue utilization within the passage (with word = 1, sentence = 2, and passage = 3) there were no significant differences found here. All readers tended to use similar units of text.

The point of schema instantiation was determined by the protocols or by questioning after the reading was completed. The clause number where the instantiation occurred was noted for each subject. Here there were significant differences. Proficient readers averaged clause number 7.7 before the context became clear, while non-proficient readers averaged clause number 19. Proficient and non-proficient females had a clause average of 9.2 at the point of schema instantiation while proficient and non-proficient males had an average of 17.5. These differences were statistically significant beyond the .05 level. (See Table 1)

TABLE 1

Analysis of Clause where Schema Instantiation Occurred—
Proficiency and Sex

Source	F value	Means			
Proficiency	14.94*	Prof	7.7	Non-prof	19.0
Sex	8.06*	Female	9.2	Male	17.5
Proficiency by sex	.42	Prof M	12.8	Prof F	2.6
		N-Prof M	22.2	N-Prof F	15.8

*Significant at .05 level

Effect of schema orientation

The number of strategies verbalized by each reader before and after schema instantiation were counted. All readers used an average of 2.25 strategies before the context became clear and 10.1 after, which was significant beyond the .05 level. There were no significant differences on the level (word-sentence-passage) of strategies employed.

The number of propositions verbalized in the readers' retellings before and after schema instantiation were counted. Proficient readers recalled significantly more propositions from the text overall (45.4) than non-proficient readers (20.6). (See Table 2.) However, all readers remembered a significant percentage more propositions after the context became clear (74.03%) than before schema instantiation (24.12%).

TABLE 2

Analysis of Number of Propositions Recalled by Subjects

Source	F value	Means			
Proficiency	4.67*	Prof	45.40	Non-Prof	20.60
Sex	.10	Female	34.80	Male	31.20
Proficiency by sex	.02	Prof M	42.80	Prof F	48.00
		N-Prof M	19.60	N-Prof F	21.60

*Significant at .05 level

Summary

The in-process nature of the present study has offered some interesting insights into the reading process. An underlying notion emerged that the reading process itself was the same for all readers, as Goodman[6] has long hypothesized. All readers exhibited the same behaviors while reading; the differences seemed to be in their *flexibility* with the process.

Proficient readers varied from non-proficient ones in their ability to notice and cue in on the macrostructure or story schema of the passage quickly, in the number of propositions they recalled (primarily because the schema was functioning as a retrieval system for them longer than for non-proficient readers), and in their summaries or paraphrases of the passage as they read. Female readers cued in on the macrostructure more quickly than did male readers.

Non-proficient readers, while using the same process, had less flexibility of strategy usage and cued in much later to the story schema. They often did not respond while reading the passage in the research setting. They seemed to feel that if they didn't know what a word meant, if they didn't know the *real*

answer, it was safer to be silent. They tried to comprehend, but didn't have the flexibility of strategy usage or adaptability of schemata that was crucial to this particular setting.

Utilization of the text macrostructure was a key to comprehension and retrieval in this setting. Readers who succeeded were operating from more of a top-down reading model, interactive yes, but most definitely paying attention to the overall structure. Retellings of all readers mirrored the emphasis on the macrostructure and many began their retellings with a macrostructure statement to organize their thoughts and then went on to the details of the passage.

Implications

The profile of a successful reader in this setting holds valuable information for those interested in developmental work with adults. Not only was the macrostructure instantiation crucial to comprehension and retrieval, but occurred more quickly for readers who were verbalizing, predicting, using varied strategies, and relating their backgrounds of experiences while reading. These characteristics emerged from a univariate analysis of the taxonomy frequencies. All readers, from beginning readers to students in developmental programs, must have an opportunity to develop strategies which access the myriad of schemata authors might use to communicate. The teacher's responsibility is to provide opportunities for diverse reading experiences which will develop in students strategic flexibility essential to comprehend all kinds of materials.

Students exposed to countless textbooks must be given the opportunity to explore the organizational schemata as well as the ideational schemata found in texts. Students who do not bring to a text an understanding of its organization, who do not make application of content to life experiences, and who do not actively organize information appropriately will not comprehend as effectively as their counterparts.

Authors and publishers of curricular materials have a responsibility to provide students with well organized materials consistent with functional, varying reading settings.

Findings in this study have shown readers to function more effectively if they were active, flexible readers trying to cue into a macrostructure to comprehend the printed message. Many evaluation procedures test skills that are assumed to be part of reading. The data from this research suggest that readers do not function in "pieces" of the reading process. In fact, focusing on the pieces impeded overall comprehension.

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CHOOSING APPROPRIATE PARAMETERS OF TUTOR INTERVENTION IN STUDENT WRITING

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One issue we are critically aware of in our Writing Lab at the University of Texas at El Paso concerns the matter of intervention. How much should peer tutors take the initiative in working to improve a student's piece of writing? This question inevitably produces conflict between teachers and the Writing Lab, and between teachers and their students; even among teachers themselves, the attitudes of what constitutes acceptable boundaries of tutor intervention vary widely. At what point is intervention called *help*? When does it become *cheating*? This paper discusses how our approach at the UTEP Writing Lab compares in some specific ways to the approaches of a few other well-established programs and how we work with tutors to help them make appropriate choices.

When our Writing Desk, which eventually evolved into our present Writing Lab, commenced operation in 1974, the plan was to hire the best writers to be found among upper division students, who would then be trained to be *peer tutors*. They would help those students *not* enrolled in writing classes who had to write papers and they would provide supplementary help for those students *enrolled* in writing classes. This tutoring would provide an opportunity for the tutors themselves to improve their *own* writing skills.

In the beginning, we thought we should help the students who came for tutorial help in writing by getting rid of the punctuation and usage errors in their papers. We wrote drills coded to the *Harbrace Handbook*. We made up a similarly coded referral sheet, which we sent down to the English Department faculty. They could check blanks according to what error each student needed to work on, so that we could prescribe drills.

That was successful to a point. But we began to notice that with a lot of student papers, after we had drilled the students and worked to eliminate the errors, the new drafts were still disorganized or had no focus or just didn't say much. So we decided to experiment with getting involved in the writing process itself. We announced that we could help students think of a topic, generate ideas, and so on.

But, students rarely came for help with a paper they hadn't already started. Instead, they came with completed manuscripts that they thought were nearly ready to be submitted. Or, they brought papers that their instructors had told them to rewrite.

We had to figure out a way to intervene in the writing process when we had an almost finished product on our hands. What we came up with is a questioning procedure that tutors can use to find out if the student did or did not use a process approach in writing the paper and, if the student did follow such an approach, where it broke down. This procedure contains one germ of our response to the dilemma of helping tutors establish appropriate limits for themselves in helping students with writing tasks.

We give new tutors a script (see Appendix 1) to help them question students. Of course, no tutor asks all the questions included on the handout. Each tutor uses the script as a guideline to analyzing how a student has used a process approach in writing a paper.

And, of course, we still have students with papers due in 30 minutes who want last minute help; and we do make suggestions for patch up work in the time they give us. When appropriate, we also still identify patterns of errors and prescribe drills from our files to reduce errors.

This, then, is the background against which I want to set the discussion of setting appropriate parameters of intervention in student writing. The challenge is to establish limits given the fact that faculty attitudes about what is acceptable differ strongly.

From informal observation, it seems that faculty members range widely in their choice of parameters from very restrictive to very permissive. Some instructors leave their options entirely up to the Writing Lab. Sometimes, on the other hand, when we ask how these instructors want tutors to work with students, some instructors describe limits that allow tutors only to diagnose student errors in punctuation, grammar, spelling, and gross organizational aspects of writing, and then to provide the drills, worksheets, and exercises to remedy those errors. These instructors will accept computer assisted instruction and sentence combining activities, programmed modules, and work with audio cassettes. They want absolutely no help with the composing process itself to be given, none with invention, and certainly nothing stylistic. Many labs across the country have adopted just this stance. Often in such labs, attendance is compulsory and grades are given. Instruction might be offered to groups of students and often such tutoring is done by professional composition instructors, rather than by *peer* tutors.

Some instructors, on the other hand, may or may not want to do their own diagnosing but think the tutor should surely help with the composing process: invention, organization, and so on. Labs responding to that particular kind of instructor's request constitute what I am calling *permissive* labs. They advertise, as does ours, their willingness to help students in all parts of the writing process, including invention. Of course there are times, even in permissive labs, when using drills and exercises is appropriate (especially

when an instructor sends the student explicitly to work on such drills and exercises!)

Among the developing, evolving, responsive, progressive, and permissive programs serving as models to labs around the country, are Brooklyn College, Carnegie-Mellon University, and Beaver College. They operate with a coherent philosophy and methodology in tune with our lab's. You can see this, for example, in their approach to handling intervention in the preliminary thought stages of composition. At Brooklyn College, students who have no confidence in their ability to generate ideas on their own begin, while working with trained peer tutors, to "identify and examine issues on . . . subjects, take positions on them, and defend their positions in ways they (had) not thought possible."[1:451]

At Carnegie-Mellon University, tutoring is done not by trained peers as at Brooklyn College, but by composition instructors called *tutors*. These tutors initiate the first session with students by having them respond to a preliminary questionnaire which leads the student toward an effective prewriting strategy. The answers to the questions reveal the extent to which the student has a sense of writing as a process. Usually the tutors find that little formal planning and revision has taken place and that students often begin the paper the night before it is due, write one draft and then type it.[2] Thus, at Carnegie-Mellon it is that preliminary questionnaire that stimulates a student's awareness of the writing process.

Possibly the most intensive effort stressing prewriting occurs at Beaver College where the entire faculty participates in a writing program based on collaborative learning techniques. Their writing center extends even to the student dormitories at night. Students there are encouraged to use their initial drafts of papers as a way of discovering which information they want to include in the final draft. Papers under this system are regarded as *unfinished* rather than *inadequate;* thus the task of discovering, rethinking and revising continues in all disciplines until the student-writer indicates that the paper is ready for evaluation.[2]

These three writing centers encourage tutor intervention at all levels of student composing. Anyone reading descriptions of writing centers in current publications, such as the *Writing Lab Newsletter,* will be pleased to note the increasing number of permissive labs. However, according to a survey conducted by Tom Nash of Auborn University, the most commonly found writing center continues to adhere to restrictive parameters, with a narrow range of service and no attempt at prewriting instruction or guidance.[2]

At our own lab, we are developing our program to accommodate a more complete range of faculty choices. We are improving communications with the English composition faculty as well as with other faculty members on campus who assign writing to their students; expanding and improving tutor-training; and increasing the breadth and depth of services we offer faculty for their students.

First, I think we must become more aggressive in learning what goes on

in composition classrooms. We are remiss to remain isolated from the classroom, not knowing what assignments we need to help with. Since we lack the uniformity among composition courses that allows the Auborn University writing center to develop a common paradigm taken from Maxine Hairston's *A Contemporary Rhetoric* and to provide tutors with a complete syllabus of a semester's writing assignments[2], we must develop other strategies to prepare ourselves for future assignments. We do have some syllabi from some composition instructors, and we continue to solicit more. We also learn what goes on in classrooms when tutors help with in-class editing sessions.

The second aspect of our service that we are working to enrich cannot be stressed too much: it's tutor training. Even though ideally we like to help the students at the beginning of the writing process, in reality we must help at whatever point students have reached when they arrive at the lab. Papers might be due in half an hour. Thus the tutor must be prepared to cope with a wide range of demands, as well as being prepared to exercise mature judgment concerning the appropriateness of the tutoring service in demand. Thus, the *sine qua non* of our success lies in the thorough and broadly based training of our tutors: in theory, in guided experience, in their *own* improved writing skills. This is added to their understanding the sensitive nature of how much to do—how far to go. Tutors should be acquainted with traditional methods of invention, from brainstorming to field theory; but they also need a broader base of experience in the humanities. In addition, they would benefit from training in interpersonal intervention styles, and from instruction in logic and linguistic theory. They also need to experience first hand what excellent tutoring means—what the possibilities are for successful tutoring.

Kenneth Bruffee, of Brooklyn College, has developed a model peer-tutor training program, required and credited, in which tutor trainees work to improve both their writing and their abilities in thinking and in expressing ideas, and at the same time learn to help their tutees do the same.[1] Through peer-group inquiry, they first learn the objective, rhetorically descriptive analysis of a paper; second, they learn to evaluate or judge a paper rhetorically; and finally, they try to make judgmental responses to the issues and points-of-view asserted and developed in a paper. At UTEP we will adapt aspects of Bruffee's training model to a credit tutor training course this coming fall.

In addition to our learning more about composition classroom assignments and to enriching our tutor training, the third area we want to expand is that of providing special services to classroom instructors. We send tutors, on request, into classroom editing sessions. The labs at both Auborn and Central Michigan Universities create paradigms to help with invention, which we might adapt to our use in the classroom. Theirs are specifically designed for common writing assignments shared by instructors. For example, a recurring assignment for beginning writers at Central Michigan asks students to "write a portrait or profile of someone especially close to you. Include enough details so that an outsider can sense your relationship to the person."[2] When

the student arrives at the writing center not knowing where to begin, the tutor has a questionnaire designed to get the student going. Examples of questions include:

— What single word (friend, priest, lover, confidant, mentor, tormentor) best describes this person and the relationship you share?
— Your tutor will rapidly mention ten personality traits or physical features (fat, nasty, clever, melancholy). Write down, without pausing to think, the first words that come to mind as you consider your character (slightly chubby, quite pleasant, "A" student, moody).
— Think of your character in terms of (a) a movie character (or actor), such as Robert Redford or Annie Hall; (b) a comic strip character; or (c) an animal (antelope, ant, sturgeon). Explain some of the reasons for your comparison. Look for a possible analogy here.[2-30]

Additional possibilities for our tutors to help instructors in classrooms came from an idea taken from the mini-courses that we offer in the lab: vocabulary classes, essay-exam taking classes, spelling classes, punctuation classes, and so on. The tutor-teachers of our mini-classes could work in the classrooms. For example, a tutor expert in teaching vocabulary-building skills could provide expertise to an instructor's class for an hour; or, a tutor especially prepared to lead an exercise on invention might be of special service to some instructors. A side benefit I see coming from these efforts to have tutors work in the context of the classroom is our increased knowledge of how that teacher works and of what he might expect his students to seek from the Writing Lab.

In the area of ethics, just as writing labs across the country differ, we find little agreement among UTEP instructors. As I mentioned at the beginning, what may be *help* to one teacher may seem like *cheating* to another or *interference* to yet another. In deciding what will work, the writing lab director can never adopt a stance to satisfy all instructors. To some, writing is obviously, inherently, a collaborative effort. To others, it becomes a collaborative effort only after a student has passed through trial-by-fire in basic composition courses. In any case, we do not encourage unrestricted collaboration on student papers in our Writing Lab. On the contrary, we try to make tutors aware of the dilemma, and we encourage them to opt for a conservative position. While we encompasss many services, we feel able to deal with students as instructors wish, when we know those wishes.

In conclusion, against a backdrop of what three well-known progressive, permissive labs do, I've intended to define our lab as a progressively oriented one whose permissive tutor-intervention parameters can accommodate the more restrictive mandates. Of the steps we want to take to improve our service, we're looking forward to initiating our tutor training course in the fall. But of no little importance is our ongoing effort to improve communication between instructors and the Writing Lab, so that we know more accurately what each instructor feels comfortable having us do.

Appendix 1

Analysis Sheet for Paper Writing

1. Can you explain the assignment?
   length?
   special directions & requirements?
   free topic choice or assigned?
   library research? how much?
   bibliography required?
   type of paper? (persuasive, expository, descriptive, narrative)
   Any terminology in assignment not clear?
   When is it due?
   Can you break it into parts?
   Plan when you will do each part?
2. Do you know a process for writing a paper? Or, did you use one? Describe what you did. (Tutor: check to see where process broke down.)
3. Here is a process:
   1. *Choose a topic.* Sources: the course, discussions, interests, experiences, educational or professional plans. Can you get information? Do you have sufficient background? Do you know how to narrow the topic? Brainstorm and choose best item on list.
   2. Do an initial investigation of the topic. (write out)
      Ideas already have?
      Sources to consult?
      Background information?
      Audience?
      Examples and other supporting material?
      Possible main heads? (Brainstorm and organize)
      Best organizational pattern?
   3. Make a tentative outline to guide research. Or, if no research, outline the paper.
   4. *Library research*
      a. make bibliography cards
      b. find books, articles, and microform material
      c. take notes on cards — one idea per card
   5. Outline all ideas and research materials
   6. Write paper fast; capture flow of ideas
   7. Revise — check organization, transitions, paragraph construction, sentences, punctuation, spelling, word usage. Check bibliography page and footnotes. Check assignment for details of form.
   8. Final proofreading.

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0103

STUDENT ATHLETES VERSUS LITERACY: ONE SOLUTION TO THE PROBLEM

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During the past ten years there has been a dramatic increase in the number of athletes entering colleges and universities whose literacy skills rank far below the national average. To qualify these students for admission and maintain their eligibility, there has been an eruption of phony transcripts and academic cheating on campuses throughout the country. This dilemma has generated a wave of national concern and is discussed thoroughly in two recent articles.[2,8]

This article does not suggest that all student-athletes are in need of assistance with reading and writing. Many have accomplished as much in school as on the playing surfaces. However, increasingly, either because some of them do not identify with literary activities, or have not experienced the same successful learning experiences and rewards from reading and writing that brought about their success in sports, they frequently possess feelings of inadequacy, alienation, hostility, and failure toward these pursuits.

While there is widespread dispute regarding the causes of this breakdown it is difficult to believe that some student-athletes cannot learn to read and write effectively. Sports and literacy make similar demands on the learner. The prerequisites for success in both areas appear in the diagram below:

SPORTS ←→ LITERACY

1. Good coaches/teachers and responsive players/students.
2. Structured and consistent teaching methods.
3. Sequential mastery of fundamental skills.
4. Appropriate intellectual and emotional responses to a wide variety of symbols and patterns.
5. A willingness among players/students to compete for recognition and higher levels of achievement.
6. Continuous reinforcement.
7. An abundance of self-discipline, perseverance, motivation, and practice.

Like sports, effective reading and writing are congruent with affective stimulation. When an athlete performs unemotionally the results are comparatively feeble. Also, if what a person reads or writes lacks emotional appeal, i.e., is unmeaningful or unmotivating, any residual effects are short lived and inconsequential. Bigge claimed:

> Content that is not so brilliantly structured, but still has much meaning, will be remembered in proportion to its meaning. Nonsense material is headed for extinction before the last syllable is uttered.[1:290]

The listless connection between some student-athletes and their textbooks or writing exercises is characterized by their failure to become intensively involved with the material. It appears they do not muster a "cognitive commerce" with the printed page. This may partially account for why so many of these young people are overwhelmed by their academic assignments. In essence, they are stung or bewildered by the prospects of having to read and write about things that do not speak personally to them and seemingly make no sense in their lives. Recently this author asked one student-athlete why she had not read a 15 page homework assignment in history. She responded matter-of-factly: "We ain't *never* gonna need *this* stuff!"

There may be two reasons why this happens:

1. Some students/athletes lack the language experiences to interact substantivally with what they must read in college or university courses. Many instructors or professors at this level overlook the need to use concrete examples as a means of introducing these students to those features of language (orthographic or vocabulary) with which they are unfamiliar.
2. Some student/athletes lack the vicarious or real-life experiences that allow them to read subject-based materials insightfully. Many professors or instructors at this level overlook the need to relate new ideas, information, or learning experiences to these students' lives by placing the aforementioned in a context with which they can identify and one through which they discover personal meaning and value.

For many student-athletes with academic deficiencies, sports is one very meaningful context. Those working to broaden these students' literacy skills will find that by involving them initially in reading and writing tasks that are tied directly to the world of sports, they establish a provocative climate in which to learn. These young people have developed a large store of language as well as vicarious or real-life experiences in sports that teachers can use as a backdrop to further learning. Student-athletes have not only actively participated in sports but have spent a number of hours watching live and

televised sports contests. They have listened to broadcasters, players, or performers, describe the action or circumstances surrounding various games and events. In doing so they have acquired a host of related vocabulary and concepts.

Additionally, many student-athletes have accumulated an abundance of knowledge and statistics concerning the history of sports, sports figures, rules, strategies, events, teams, etc. They are motivated to *apply* or *demonstrate* what they know and *want to learn more*! Teachers can employ sports related reading materials (sports magazines, the sports sections of newspapers, biographies of sports heroes, publications containing sports quotes, trivia, superstitions, poetry and humor) to strengthen student-athletes' literacy skills. Such material might be adapted to provide these young people the following specific learning experiences that will build broader reading and writing skills in their subject areas:

1. Opportunities that motivate student-athletes to become active readers instead of passive word callers.
2. Opportunities for vocabulary and language enrichment.
3. Opportunities to perform critical reading skills, e.g., distinguish between fact and opinion or cause and effect, locate likenesses and differences, and critique an author's ideas for strengths and weaknesses.
4. Opportunities to collect and organize data, do inductive and deductive thinking, stimulate interpretive or creative levels of reasoning, and introduce them to various situations that require performing problem solving operations.
5. Opportunities to practice and apply structured procedures for studying subject-based reading material.

Some examples of ways in which sports related materials may be used to augment student athletes' literacy skills in English, math, social studies, and science appear below. These are not meant to be whole instructional packages, but to serve as models from which instructors might create their own programs. They should not be employed as merely paper and pencil drills. A more acceptable approach would consist of using these ideas to stimulate individual or group discussions and provide a framework for student athletes to practice subject-based reading and writing skills.

Sports in English

Using the following kinds of statements from newspapers or sports magazines, teachers can stimulate students' interest in vocabulary, language, math, and social studies while encouraging them to recognize simile or metaphor, perform deductive/inductive reasoning, and calculate solutions to arithmetic problems.

Last year, neither Baylor nor Singleton could throw a baseball through a

spider's web. Baylor's arm has always been considered as useful as adenoids.

Directions: Ask students to read the above statement and respond to the following questions:

1. Why has the author used the image of a "spider's web" to describe Baylor's and Singleton's pitching? (Metaphor)
2. What does the statement, "as useful as adenoids," mean? (Simile)

True or false: Defend your answers!

1. Baylor has the better throwing arm.
2. Singleton's arm is much stronger than Baylor's.
3. Baylor and Singleton both pitch.
4. They both play baseball.

Directions: Have students read several quotations by various sports celebrities and write their interpretations for these:

Roger Stauback, Ex-Dallas quarterback, at a roast for Kyle Rote Jr.: "He is a great competitor. He doesn't know the meaning of the word fear . . . or cat . . . or dog."

What is Roger trying to say? _____

_____

Vince Tralka, coach of a high school girls basketball team: "We play a man to man defense. Person to Person sounds like a phone call."

What is Coach Tralka trying to say? _____

_____

Mike Rice, Duquesne basketball coach, to a player who threatened to jump off a bridge into the Ohio River after hitting on just two of 14 shots: "Wait until tomorrow morning. You might miss the river tonight."

What is Mr. Rice trying to say? _____

_____

To teach sports poetry, have students read, for example, "To An Athlete Dying Young," by A.E. Housman[3:361], and answer the following questions:

1. What is the tone of Housman's poem?
2. What sense do you get for an athlete's future?
3. Is there any value in having been a great athlete? Why or why not?
4. What is the author's advice to those who would so dedicate themselves?
5. Does the author leave you with a feeling that fame and glory are longlasting and highly prized?

6. Write a poem of your own expressing your feelings toward a sport or great athlete.

To get students interested in reading biography introduce them to a brief episode taken from a book and used as an "interrupted" story. For example a teacher might excerpt a couple of pages from *Jesse*, by Jesse Owens and Paul Neimark[4] and copy these for the class. Try and choose a portion of the story that tells of a dramatic moment in the individual's life or a part that you think is sure to "hook" the group and stimulate real interest. After reading the selection and discussing it make a couple of copies of the book available to students. Give the students a date and time to report to the class on some further events in the life of Jesse Owens.

Sports in math and social studies

Have students read statements like the following and answer the questions:

Last year Tony Dorsett ran for a total of 1,680 yards. Ron Springs ran for 1,120 yards. Robert Newhouse gained 890 yards rushing.

1. How many yards did Dorsett and Newhouse gain on the ground?
2. What is the total number of yards gained by all three runners?
3. What is the difference between the total yardage compiled by Springs and Newhouse? Between Dorsett and Springs? Between Newhouse and Dorsett?

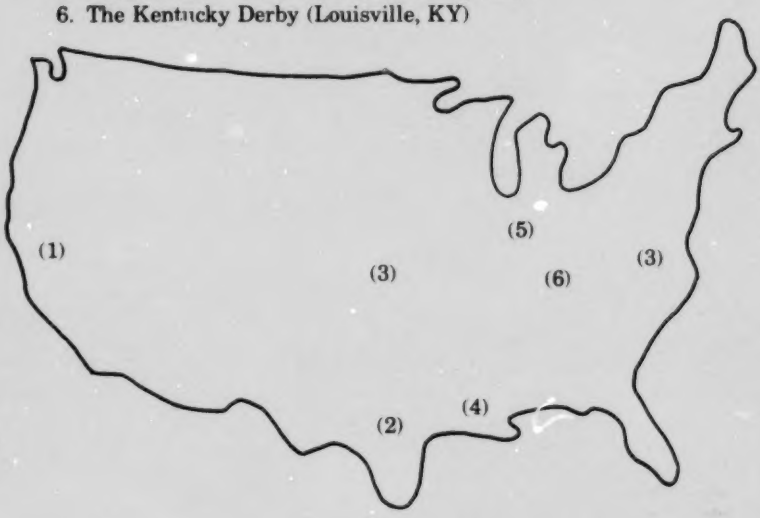
The same three running backs caught passes totalling 650 yards for Dorsett, 598 yards for Springs, and 425 yards for Newhouse.

1. What is the total number of passing yards gained by the three players? Is it greater or less than the total rushing yardage?
2. What is the difference between the number of yards Springs was able to gain on the ground compared to those he gained through the air?
3. Why do you suppose the totals are much less for passing as opposed to rushing?

On a map, have students locate the cities where the following famous yearly sporting events occurred then answer the questions:

1. Bing Crosby Pro/Am Gold tournament. (Monterey, California)
2. World Championship Tennis Finals. (Dallas, Texas)
3. The 1980 World Series (Both Cities, Kansas City, MO & Philadelphia, PA)
4. Superbowl XV. (New Orleans, LA)

5. NBA All Star Game 1981 (Cleveland, Ohio)
6. The Kentucky Derby (Louisville, KY)



Which event took place in the largest city?
Which event occurred farthest north, south, each or west?
Which event may have been played in sunshine? Rain? Snow?
Which of these cities has a Spanish name? Where is it located?

Sports in health or science

The ability to keep records and read graphs, charts, and pictorial material is important in many content areas. Students must make assumptions, comparisons, inferences, and conclusions based on these diagrams. The following activity provides students with one such reading opportunity and requires them to record, collect, organize, and interpret data.

Provide students with stop watches. First, pair students for recording each other's pulse rate at rest. Ask them to record these statistics on a chart. Discuss the differences among class members. Next, ask them to take turns running in place for two minutes and record these figures as well. How do the rates differ? Why did they increase? Finally, ask them to measure the heartbeat after a two-minute recovery period. How many returned to their original rates? Why are some about the same as they were at rest, while others are still somewhat accelerated?

As a follow-up activity, ask for volunteers to go on a jogging program for two weeks. At the end of that time, have the whole class repeat the experiment. Are there any differences between the volunteer joggers' figures and those of the rest of the students? Discuss reasons for these changes.

Using sports to teach study skills in subject areas

Directions: Identify an area of sports interest for student-athletes. This may be a specific sport, coach, team, player or general topic, e.g., The Olympics, NCAA Playoffs, The Master's Tournament, The Belmont Stakes, etc. Select materials, or articles from newspapers and magazines which relate to these interests. Choose those that have accompanying pictures whenever possible. The teacher should preread the material.

Present the material to students using the following adaptation of Robinson's *SQ3R* technique (1960):

Survey: Create a background of experiences for reading and introduce unfamiliar vocabulary and concepts. Ask the students what the article is about based on their interpretations of the accompanying picture(s). After a brief discussion along these lines tell them to scan the first part of the article (column or section) and underline or circle any word or phrase they do not understand. If the student fails to identify any words or phrases during the preview the teacher asks for specific definitions and clarifies meanings. Guide students over each succeeding column or section in the same way. The student should skim headlines and pictorial captions as well.

Question: Set purposes for reading and establish interest. After the students have looked the article or material over and you have discussed the pictures, unfamiliar vocabulary, and phrases, direct them to write down two questions they might ask concerning the content. The teacher also writes two questions as a result of the prereading activity. Typically, students' questions will be literal so teachers should try to form theirs at the interpretive or inferential level.

Read: At this point students are directed to read the article or material silently and look for answers to their questions. They are also instructed to circle or underline any additional words and phrases that are unfamiliar. If students fail to do this, teachers should make a point of questioning them over those terms they suspect may be unknown or confusing and explain the importance of reading for meaning at all times.

Recite: Students are now asked to recite as much of the story or content as they can. After students paraphrase the material teachers ask if they can answer the two questions they had posed initially. Teachers also ask students to answer the two questions they themselves have written concerning the material.

Review: If students are unsuccessful retelling the story, answering their own questions, or if they cannot respond effectively to those of the teacher, they are referred back to portions of the text that reveal required information. Teachers check for full understanding by observing any absence of main ideas or details and assisting students in uncovering these as well.

Summary

For student-athletes who have had real and vicarious experiences in sports, these types of reading activities make sense and seem to excite their interest immediately. They provide teachers an excellent instructional tool and a vehicle to stimulate those who show disinterest in academic content and are reluctant to read from their textbooks or write creatively.

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CONTROLLED COMPOSITIONS: MORE PRACTICE FOR STUDENTS, LESS GRADING FOR INSTRUCTORS

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Nothing is more universally acknowledged in American higher education today than the need for improving students' writing skills. It is also generally agreed that more writing practice is necessary to achieve that end. The challenge to teachers of composition and basic skills is clear: assigning enough writing practice to improve effectiveness and avoiding teacher burn-out.

A partial answer lies in the use of controlled compositions. This method is suitable for a wide range of student abilities. Able students enjoy it, but it is also effective with academically underprepared students, those who flounder in grammar studies, students of English as a second language, rusty returnees, high-anxiety types, and those who can't think of anything to say.

Method

Here's how the method works. Students copy well-written short compositions, changing each one in some meaningful way, such as from present to past, singular to plural, slang to standard English, and so on. Or they may combine selected sentences within the composition to form appositives, compound sentences, adjective clauses, adverbial clauses, etc. They learn the appropriate punctuation in context as they make these changes. In effect, they are playing the game in order to learn the rules.

Basically, controlled compositions are a means of learning to write by imitation, but they are not mindless copying. The student must manipulate the passages thoughtfully, concentrating on one construct at a time. Thus, even the student who has had repeated failures can write a perfect paper.

Students copy the entire passage, rather than just cross out and replace words. In this way they develop fluency, continuity, and proofreading ability. If students make more than three errors on one controlled composition, they should re-do at least those sentences in which the errors occur. Even better

results can be obtained by re-doing the whole paper to get a perfect copy, because this task resembles revision tasks in the world of work. However, students should not have to re-do an exercise more than once. They should move on to a more difficult assignment.

Grading of controlled compositions is quick and easy. The instructor quickly becomes familiar with each exercise and can scan it in the student's presence. By merely circling errors and asking the student to explain what's missing or wrong, the instructor encourages independent thinking. Tutors or student aids can also be trained to grade controlled compositions with a key. In some instances, more than one response may be acceptable. The grader should accept any student response that makes sense, even if it differs from the suggested version in the answer key.

This method has limitations, of course. It should be supplemented by such methods as free writing, journal keeping, sentence combining, clustering, and original compositions. Once students have been exposed to the good writing in controlled compositions, however, their original writing improves as they draw upon the patterns and structures they have absorbed.

Effectiveness of the method

To test the effectiveness of controlled compositions in reducing mechanical errors and increasing fluency, a pilot course in basic writing was conducted at Sacramento City College in Fall, 1978. Although the class was a remedial course, students ranged in ability from candidates for regular freshman English to learning disabled students. All made measurable gains. The achievement of these students over a semester was compared to that of a carefully matched group who studied traditional sentence structure. The two groups were comparable in entrance exam scores, high school English grades, age range, sex ratio, and number of foreign students enrolled. Both groups were taught by experienced and dedicated instructors.

The experimental group used thirty controlled compositions, sequenced according to difficulty, along with free writing and the writing of original sentences from stimulus words (clustering). As measured by essays on uniform topics at the beginning and end of the semester, students in the experimental group reduced their mechanical errors by 43 percent and increased fluency by 17 percent. The traditional students, in contrast, reduced their errors by only 15 percent and did not increase fluency at all. In fact, they wrote, on the average, 10 percent fewer words than they had at the beginning of the semester. All instructors involved considered the gains of the experimental group to be significant (not statistically significant, however, because the sample was not randomized). Further details of this research may be found in the author's doctoral dissertation, "A Comparison of Fragmented and Holistic Modes of Instruction in Remedial Writing," ERIC document CCM000134.

Applications of the method

The applications of this method are as variable as students themselves. A business instructor, for example, could apply this technique to business letters and reports. Instructors in vocational and technical programs could select materials of special interest to their students. Instructors of students with low self-esteem can select materials from self-help books with a strong "can do" flavor. Following are two samples of controlled compositions in the last category.

Samples of controlled compositions

Sample Exercise No. 1 — Writing About Men and Women

DIRECTIONS: Rewrite the passage below in your own notebook. Change it so that it describes a woman instead of a man. Put a box around each of your changes, proofread the whole paper to be sure it makes sense, and then see your instructor or aide to compare your paper to the answer key. Pronouns you will need to change are underlined. Your first sentence, when changed, will read like this:

The healthy personality is a person who likes *herself.*

The Healthy Personality

The healthy personality is a person who likes himself. He likes other people and accepts their faults as well as his own. He acts naturally, without pretending to be anything he is not. He prefers to face an unpleasant reality rather than retreat to a pleasant fantasy. Usually his behavior is like that of his friends, but he can be different if necessary. His moral values are the highest; he wants justice and fairness for all people. Being alone is no problem for him, and he stays true to his beliefs even when all others seem to be against him.

He feels a sense of belonging to mankind as a whole, so he does not discriminate against people because of race, social class, or religion. When he sees an injustice, he is likely to speak out against it. Although he enjoys the company of others, he is not dependent on them. Close friends of his make up a comparatively small group, but their relationship to him is deep, meaningful, and lasting. He has a tender love for children. And, like a child, he sees the world freshly; he can appreciate again and again the beauty in ordinary things — a sunset, a flower, a baby, a person.

Sample Exercise No. 2 —Practice in Using You *Consistently*

DIRECTIONS: Rewrite this passage in your own notebook. Change it from a formal passage using "one" and "he" to an informal passage using "you" forms. Be consistent all through the paper. Put a box around each change you make, proofread the whole paper to be sure you have been consistent, and see your instructor to compare your paper to the answer key. Your first sentence, when changed, will look like this:

> If [you] [are] hypnotized and told that [you] [are] at the North Pole, [you] will not only shiver and appear cold, but also develop goose bumps.

The Secret of Hypnotic Power
Adapted from *Psycho-cybernetics,* by Maxwell Maltz*

If one is hypnotized and told that he is at the North Pole, he will not only shiver and appear cold, but also develop goose bumps. The same amazing thing happens if he is told to imagine that one hand is being held under ice water; his temperature will drop in that hand. When he is convinced that the hypnotist's statements are true, he behaves differently because he thinks and believes differently. When he is convinced that he cannot feel pain, he can undergo surgery without an anesthetic.

He acts and feels, not according to what things are really like, but according to the image his mind holds of what they are like. He has certain mental images of himself, his world, and the people around him, and he behaves as if these images were true.

If one sees himself as clumsy, he will behave in clumsy ways. If he sees himself as a poor speller, his spelling will surely be poor. On the other hand, if he believes he can learn, he will work at learning and succeed at it. Whether he thinks he can or cannot do something, he is right.

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Composition theory and professional literature

The controlled composition method effectively applies current composition theory. It is an appropriate technique for the "new student" described by Patricia Cross[2] who prefers activity to lectures. It provides the much-needed practice recommended by Shaughnessy[12], Sykes[15], D'Eloia[3], Lunsford[9], and many others. More important, this kind of practice provides positive models in a context, not just isolated drills, and yet it works toward the correctness students themselves desire.

As an alternative to grammar and usage drills, controlled compositions make a constructive contribution. The general public's ardent belief that

grammar and usage drills will cure students' writing deficiencies flies in the face of a substantial body of research. Summarizing over 50 years of this research, Dunning and Sledd[4] listed several "knowns" leading to the recommendations by the National Council of Teachers of English for teaching writing:

1. That isolated drills in usage, formal grammar, phonics, and spelling have little value. These skills are best learned in a context.
2. That most students learn to write and read by performing real tasks: writing letters, notices, stories, reports for a class audience, etc.
3. That drills may be useful following diagnosis of weakness in a specific area, but not as a substitute for whole writing tasks.
4. That students need help *during* the writing process.
5. That sentence building is more productive than analysis or labeling.

Similar conclusions may be drawn from the third National Assessment of Writing, a federally financed effort to measure writing performance in the nation's schools between 1969 and 1979. Of the broad sampling of nine-, thirteen-, and seventeen-year-old students, most had a grasp of grammar and punctuation but showed weakened ability to write persuasively and with sophistication[11]. These findings were interpreted as an unfortunate by-product of the back-to-basics emphasis upon simple skills. By using controlled compositions, however, the instructor can follow the recommendations of N.C.T.E. and also assist students in developing style.

Copying as a means of learning style was a much-utilized method in the eighteenth century, and many practitioners are now recommending its revival. William Gruber[7] reported amazing improvement in his students' writing through "servile copying" of the style of Mark Twain and other writers. Daniel Fader[5] also advocated copying in his 1976 book *The New Hooked On Books*. He told an anecdote about a youth in a detention facility who had "nothing to write about" for his journal, but when allowed to copy *Time* Magazine for six weeks, improved not only his writing but his participation in social studies classes. Edward Corbett and Barrett Mandel[10] suggest that copying model passages allows students the experience of producing mature prose without consciously conceptualizing it first—in other words, bypassing the analytical left hemisphere of the brain and experiencing insightfully with the right hemisphere.

Research on brain hemisphericity by Brandwin and Orstein[1] and others is giving us insight into why holistic methods of instruction work. The left hemisphere controls language, rational cognition, sequential concepts, and analysis of details. The right hemisphere controls intuitive thinking, spatial perceptions, holistic and generalizing perceptions. Hunter[8], Sperry[14], Samples[12], and Galin[6] point out that education (especially in reading and writing) rewards left-brain activities more than right-brain ones. They plead for greater symmetry in development. Because controlled compositions per-

mit the holistic imitation of patterns as well as accurate perception of details, they teach to both halves of the brain.

Sound in theory, effective in practice, and simple to implement, controlled composition can be a useful technique for both teachers and students.

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ADJUNCT COURSES: INTEGRATING STUDY SKILLS INTO CONTENT COURSES

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For decades (beginning with Harvard in the late 1800's) colleges have been seeking ways to provide help to the ever increasing number of students with the ability, but not the skills or self-confidence to do college work. Numerous non-traditional programs have been attempted with varying degrees of success. The most common effort at remediation has been the intensive care unit. Freshmen students are fed through programs consisting of one or a series of remedial courses in reading, composition, and/or math while simultaneously enrolling in regular content courses. These programs are generally unsatisfactory for three reasons. First, remedial courses are typically non-credit and, as a result, students tend to give them lower priority. Second, students don't seem to transfer skills learned over to their content courses. Finally, because students are simultaneously enrolled in regular content courses requiring skills they haven't yet developed, they often fail out of college before the remedial courses can be effective.

Adjunct courses

Our university has attempted to solve this problem by offering "adjunct courses." These are freshman level content courses with two extra class sessions attached per week. These adjunct classes are used to integrate learning and study skills into the teaching of the regular course content. Thus, retention of students is increased in courses where they have traditionally failed and students have the opportunity to earn academic credit and improve their skills, while taking courses employing the same university standards common to any other section of the course.

Adjunct courses consist of two components—a content component and a skills component. The content component is a regular freshman level content course which high risk students need additional help for successful completion. The skills component consists of two extra class sessions per week taught by a learning specialist in reading, writing, or math depending on the requirements of the content course. For example, courses having a math base

are taught by the math specialist, and courses requiring much writing are taught by the writing specialist.

The selection of the two instructors and the quality of their working relationship is vital to the success of the course. The two must be sensitive to educationally disadvantaged and minority students and possess the desire to put forth the extra effort necessary to aid students' growth both academically and personally. The content instructor is a regular member of the department offering the course who has usually become interested in the adjunct program during a five day Seminar in Developmental Education offered every spring at U.W.—Eau Claire. The content instructor receives no extra pay for teaching an adjunct course. The adjunct instructor is a regular member of the Academic Skills Center and teaches one or two adjunct courses per semester in addition to other work. The adjunct program has been so successful, however, that in some instances departments are hiring their own adjunct instructors because ASC staff are unavailable.

Adjunct Courses may be taught in either of two formats. In the majority of our adjunct courses, the content instructor teaches on Monday, Wednesday, and Friday, covering the same course content as that taught in other sections of the course. The skills instructor attends also, sitting in various spots throughout the classroom, observing individual students' listening and notetaking behavior (and informally discussing after class) and serving as role model for students. On Tuesdays and Thursdays, the skills instructor teaches the skills needed for success in the course, while the content instructor observes and serves as a content resource. Some content instructors observe only occasionally, but experience has shown that their presence is important. Both student attendance and participation are greater when they attend. Also, the adjunct classes serve as an inservice program for them. They tend to improve the quality of their own teaching as they observe the techniques of the adjunct instructor. The other and preferred format but one which is more difficult to implement, is the integrated approach in which the two instructors share time daily and, in effect, team teach the course.

Students advised into adjunct courses include the following:

1. Those students who are repeating the class after failing or dropping it in a previous semester.
2. Those students readmitted to the University after suspension for low grade point average.
3. Those students admitted to the University on probation due to insufficient units, low high school grades, or substitution of G.E.D. for high school diploma.
4. Those students returning to college after an extended absence from schooling.
5. Those students with learning disabilities or skill deficiencies identified by advisors or tests administered in the Academic Skills Center or during Freshman Orientation (a two day period during which students

are administered placement tests in reading, writing, and math). Most students in the adjunct courses fit into this category.

Planning

Once chosen to teach an adjunct course, content and skills instructors meet together with the adjunct support staff for a three hour inservice program. The first hour is used to provide an overview of the adjunct program and to introduce instructors to the support staff (advisors and Academic Skills Center staff). During the second hour, experienced instructors for adjunct courses share their experiences and suggestions, and new instructors have an opportunity to ask questions. Finally, each instructional team pairs off and begins planning its adjunct. Their working relationship is encouraged from the beginning; the relationship between the two instructors and between their two components are important aspects of the adjunct course. It is essential that the two be integrated, rather than two separate courses.

Using a handbook as a guide, the two first analyze each of the four major components of the content course, the four T's — i.e., the *teacher* and his personality and style; the *text*, its difficulty, interest, and role within the course; the *tests*, the number and type; and the *talk*, or format of the classes. The content instructor has already planned the course in terms of these four factors; during the inservice, both instructors simply analyze the factors to determine which learning skills are demanded by the course. Both instructors are bringing experience to this decision: the content instructor brings experience in teaching the course, and knowledge of the kinds of problems students have with it; the learning specialist brings knowledge and experience with disadvantaged students and the learning process. Together they decide which aspects of the course are likely to cause problems and which skills require instruction.

Their decision, of course, is only tentative until they can determine the specific skill levels of individual students in the class. Four kinds of information are utilized to determine skill needs of students:

1. Scores of tests in reading, writing, and mathematics given during Freshman Orientation are sent to the instructors upon request.
2. Sometimes a study skills inventory or diagnostic reading test is administered to the class. This provides an individual and a class profile of skills.
3. Group informal reading inventories or cloze tests are often given to determine the kinds of problems students will have in reading the text for the course.
4. Content instructors are encouraged to test early in the semester to determine students' skill levels.

After deciding which skills to emphasize, the content and adjunct instructors discuss plans for integrating the teaching of these skills with the content of the course. Instructors inexperienced in teaching adjunct courses

are provided with a resource manual which includes a discussion of specific skills problems of disadvantaged students, resource information about each skill, and suggestions and handouts for each.

Content of adjunct classes

The purpose of the adjunct classes is to build study skills of students so that they can be successful in both the attached content course and their other courses as well. Little lecturing or direct teaching of study skills is practiced; activities are emphasized. The intent is to provide an integration of skills with content, not a separate study skills course. The skills which are developed include scheduling/time management, text reading and notetaking, lecture notetaking, outlining, summary skills, test taking skills, listening skills, speaking and discussion skills, and problem solving.

Most adjunct students are freshmen from high schools in which lectures and lecture notetaking are uncommon; thus these students are at a loss in college classes in which lecturing is the norm. The adjunct instructor usually teaches the Cornell system early in the semester and periodically evaluates students' notes using this system. Frequent activities are used to provide students with practice using effective notetaking. Sometimes a transparency of the adjunct instructor's notes or a videotape of a segment of the previous content class is used so students can check their own notes for completeness and format, and the group can discuss the instructor's lecture style. Sometimes students write key words or summaries from either their own notes or a transparency of the adjunct instructor's notes. Faculty are encouraged to help in teaching efficient notetaking by beginning each session with a review of the previous class and an overview of the one about to begin, by ending each class with a summary, and by using the blackboard to emphasize key words and ideas.

Students enrolled in adjunct courses generally have poor reading skills and often experience frustration and failure when faced with the massive amounts of reading required in most college courses. The adjunct instructor teaches students how to read the text, using a variation of *SQ3R* designed for use with the text used in the course. Throughout the semester, students preview chapters, map chapters, discuss graphs and other aids, and do various activities forcing them to use the organizational structure of the chapters. The adjunct instructor also discusses internal and external concentration problems, and encourages students to set goals for themselves in these areas. Content instructors are encouraged to discuss purposes for reading each chapter, the amount of thoroughness expected, and to make actual reading of the text necessary for success in the course by including questions on the tests which cover information not given during the lecture. The adjunct instructor teaches effective techniques for studying and taking the type of exam used in the course. Throughout the semester, students are grouped to make up exam questions from the previous chapter or lecture;

these questions are later used in review sessions before the exam. Students are also taught how to write summary sheets; usually before the first exam, the class makes part of a summary sheet together. After this first exam, a post-exam survey is given and used as a discussion guide to discover more efficient ways of studying for the next exam. Students are encouraged to set goals for improving their studying. Throughout the semester they are encouraged to ask questions about the kinds of exam questions to expect and the amount of emphasis which exams will place on the text, lectures, outside reading, etc. The instructor is encouraged to tightly structure the course by providing frequent tests, quizzes, and class discussions to ensure that learning is distributed and not crammed.

The atmosphere is an important aspect of the Tuesday/Thursday sessions. The adjuncts are designed to improve self-confidence and motivation as well as learning skills. Instructors make a point of showing personal concern for students. If a student is absent, the skills instructor will either call or talk to the student about the absence before the next class; the importance of attendance is stressed heavily. If a student received a low grade on a test or quiz, the student is scheduled to talk with the skills instructor about what went wrong and ways to improve on the next test. Evaluations are administered frequently to provide students with constant feedback.

Support services

Adjunct courses focus or pull together all campus resources for high risk students:

Academic Skills Center. Skills instructors meet individually with each student in the Academic Skills Center early in the semester to discuss the students strengths and weaknesses and which ASC services (i.e., individualized tutoring in basic skills or minicourses in specific study skills areas) are appropriate. The skills instructor also makes a point of occasionally asking each student about the student's work in the ASC. As a result of this visit, students seem to feel more comfortable seeking out ASC services.

Precollegiate program for disadvantaged students. This is an intensive five-week learning experience in an integrated program of science, math, reading, and composition. The program serves approximately 40 minority and disadvantaged high school graduates each summer. Those who successfully complete the program receive three credits and are endorsed for fall admission. Most of these students are advised into adjunct courses in the Fall.

Special advising. This component includes special advisors for disadvantaged students, for minority students, and for older returning students. These special advisors serve to complement department advisors and to insure that low-skilled students are channeled to appropriate support services. Students are referred to them on the basis of low high school records, recommendations from department advisors, counselors, or instructors, and

from screening tests in reading, writing, and mathematics given to all entering freshmen. Special advisors are concerned with the whole student: they assist in evaluating each student's strengths and weaknesses, advise him appropriately according to these strengths and weaknesses, and provide information about (and encouragement to seek out) campus resources needed, and generally serve as a central contact for the student. Each student signs a contract with a special advisor in which the student agrees to utilize specified support services and to have the student's academic progress monitored.

Evaluation

At the end of each semester, each team of instructors for an adjunct course evaluates the course in the following ways:

Evaluation of course objectives:

What skills were originally planned to be developed?

What was done to develop these skills?

How was skill acquirement measured?

What content-based objectives were planned for the course?

How was student achievement of these objectives measured?

Evaluation of student achievement and behavior:

What was the grade distribution within the course? Is this pattern significantly different from other sections?

Were there any changes in student behavior? What were they?

Did students attend content and adjunct classes regularly?

Did students complete assignments and exams as scheduled?

Evaluation of student perceptions:

Have students evaluate both the content and skills parts of the course.

In addition, the adjunct courses are currently being evaluated to determine effect on GPA and retention. These studies are incomplete at present.

Overall the adjunct course program has been quite successful. The program began in 1976 with two courses, Psychology 100 and Sociology 101. This semester ten adjunct courses in seven departments are being offered.

There have been problems connected with the adjunct courses during these five years. For example, motivating students to attend extra classes and do extra skills assignments for which they usually receive no extra points or credits can sometimes be difficult. Also, students in the courses have a wide range of skills. Another problem is that students who take more than one adjunct course often complain of overlap during the first couple of weeks in the semester devoted to preliminary skill teaching. Finally, faculty willing to devote the extra time and effort are sometimes difficult to find.

However, on the positive side, learning skills are much easier to teach in this format; students perceive their relevance and importance because course materials are used to teach the skills. Using course material also provides the repetition of content these students need. Also, students are forced to practice the skills over and over again so they tend to become regular study habits and to be transferred over to other courses. Students also tend to see the need and take advantage of other support services during and after they've taken adjunct courses. Overall, students seem to emerge from adjunct courses with better study skills, greater self-confidence and satisfaction about the academic environment, and generally an improved chance of success in college.

WALTER GONG LEARNING AND TEACHING: A PARADIGM FOR CONTENT MASTERY

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Walter Gong is a professor of biology at San Jose State University who, over the past fifteen years, has developed an innovative learning approach to an eight-credit general education natural science course.[1] Gong's methods always involve three types of people: teacher, learner, and others. His model for learning supposes the usual information learning flow from teacher to learner, but requires an additional teaching flow from the learner to others. "Others" in the learning cycle can be other learners in the course or anyone outside the course willing to listen and learn from the learner. The teacher is involved in the learning process by the standard methods of teaching, i.e., lecture, textbook, laboratory, etc. In addition, the teacher interacts with the learners because the teacher is both a teacher and a learner. The learner is involved by receiving information from all learning sources including the teacher but, in addition, by expecting to master the content well enough to teach others the same information. This is the basic model. The requirement placed upon the learner is that the individual be more than a learner — that the person be a learner/teacher.

According to Herlin and Mayfield[2], Gong's success at San Jose State University was of such interest to the administration at Brigham Young University that he was invited five years ago to teach professors at BYU his approach to teaching and learning. Gong's initial work at BYU was viewed as teaching a teaching method. It was obvious, however, that his approach was an equally powerful learning technique; hence Pierce and Herlin[6], Herlin and Mayfield[2], Peterson[5], and others began to explore ways to adapt the teaching technique directly to students' learning needs regardless of how a specific teacher might choose to teach his or her class.

A religious base for learning/teaching

Gong's presentation at BYU emphasized a religious and scriptural base for his technique, generally using the Christian concept of love. He based the

learning/teaching model on solving the needs of three persons (teacher, learner, others), but applied to those three the scriptural injunction[3] to "love the Lord thy God with all thy heart and with all thy soul and with all thy mind," and to "love thy neighbor as thyself." One learns by remembering that efforts to learn are a matter of loving the teacher well enough to show the respect and attention necessary to learn and loving neighbors well enough to share knowledge by teaching those neighbors what one has learned.

A psychological base for learning/teaching

Pauk[4:78] summarized his eight psychological principles of memory into three "rules of memory":

1. Create a positive mental set. Create either naturally or artificially an active interest in what is being said or read so that you will get the information accurately in the first place.
2. Think actively by listening, observing, talking, selecting, and organizing, with the intention to remember.
3. Recite and review facts, names, and ideas so that consolidation and transference to the long-term memory can take place.

One can see suggested in the Gong three-person principle a learning/teaching process that readily creates the necessary positive mental set, that is, the interest that allows one to learn information accurately in the first place. The true learner/teacher has no other choice but to think actively, observe, talk, select, and organize. Finally, recitation; review of facts, names, and ideas; and preparation for teaching all ensure transference to long term memory.

Description of learning/teaching

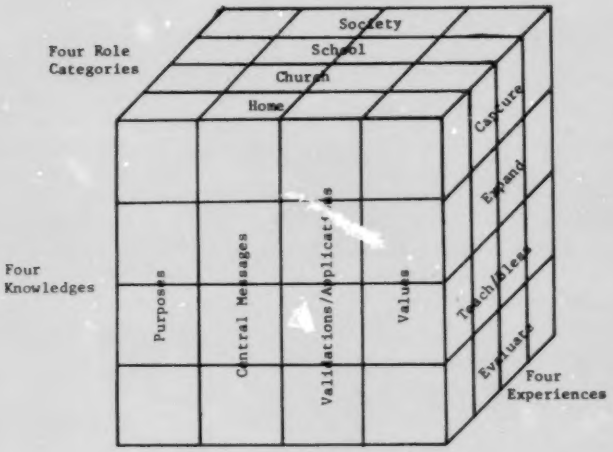
Three dimensions of learning/teaching are emphasized by Gong[1]. These include (1) the four knowledges, (2) the four experiences, (3) and the four role categories.

Figure 1 represents a dimensional view of the Gong learner-teacher model as described by Herlin and Mayfield[2:71]. Seen dimensionally, the model suggests that a prescribed four-fold set of experiences acts upon a four-fold organization of knowledge in a four-fold categorization of roles. Within this model, the constant role shift from learner to teacher to learner again ensures learning in depth, over the long term.

The four knowledges. Cutting across the disciplines, Gong postulated four knowledge types that are essential to mature understanding of content. Knowledge is usefully rearranged by the learner/teacher into the four essential knowledges: (1) purposes, (2) central messages, (3) validations and applications, and (4) values. The learner/teacher attempts to rearrange knowledge to see what purpose the teacher (lecturer, etc.) had in mind in presenting it;

FIGURE 1

Dimensions of knowledges, experiences, and role categories in the Gong learning/teaching model



what pattern of central message the teacher gave; what support the teacher used to validate the central messages, and what applications the teacher suggested that grew out of the messages; and what value the teacher placed on the messages' importance or timeliness. Rearranging content into these four knowledge types helps both learner and teacher understand, learn, remember, and teach essential content.

The four experiences. The four experiences require the learner/teacher to (1) capture content, organized into the four knowledges; (2) expand any or all of that content by relating it to previously learned knowledge and additional follow-up study; (3) teach others the essential content, that is, the four knowledges; and (4) evaluate one's own intellectual growth as a result of the three previous experiences.

The four role categories. The third dimension of Gong's learner-teacher model is merely a reminder that learning/teaching is not limited to formal school learning but can take place in such environments as the home, church, school, or society.

Applying Walter Gong learning and teaching

Three preliminary studies of the Gong learner-teacher model were made at BYU, reported by Pierce and Herlin[4] and by Peterson[5]. One was in General Studies 110 (Effective Study and Learning), one was in a half-credit adjunct

class to English 115 (College Reading and Writing), and a third was in an experimental course set up expressly for Gong learning/teaching, General Studies 100 (Forum Analysis). In the English adjunct and the GS 100 classes, students were required to attend university-sponsored forums on general topics of the day, where they applied the Gong techniques to learn the content of the forums. Thus the English 115 adjunct classes and the GS 100 class were reported jointly as the "Forum Project." The GS 110 study attempted to integrate Gong techniques into an already existing study skills class.

General Studies 110 experiment

Students in the GS 110 classes were tested in an early and late devotional assembly.[5] Between the two assemblies they had several opportunities to learn and practice Gong techniques. They were encouraged to write down learning/teaching experiences as purposes, central messages, validations and applications, and values.

Based on early and late assembly comparisons, thirty-four pre- and post-test participants were analyzed in three specific areas: (1) amount of individual items "captured," (2) relationship of the four capture knowledge questions, and (3) the response of the written paper as a whole. Responses were examined by two independent examiners, one a teacher involved in the experiment, and the other a disinterested judge. The correlation between their analyses of responses was .95.

The results showed a significant increase in all three examined areas in favor of the later assembly. The most interesting result was in the second analysis category, where the earlier assembly responses tended merely to divide the talk into four chronological quarters with the first quarter given as an answer to the first question, the second quarter as an answer to the second question and so on. By the later talk, instead of dividing the talk into chronological segments, the students recognized purposes in the purposes category; made definitive statements in the central messages category, and repeated stories, scriptural references and other supporting information in the validations/applications category. In the last analysis category, the difference was not only statistically significant, but was observably much greater for the later assembly. In the earlier talk, students could only remark that the talk had been "good" or "interesting," but after learning the Gong technique, students went well beyond the "good" and "interesting" statements to explain in some detail why it was good and what points made it interesting and how those points had related.

English 115 and General Studies 100 (Forum Project) experiments

In Peterson's[6] report of the Forum Project, the changes in ability to capture information were similar to those found in the GS 110 experiment,

but there tended to be differential shifts towards quality responses based on what teachers did. Two groups were simply told what the four knowledges were and were asked to attend the forums and capture each using the four-knowledges organizational pattern. They were given no feedback to their responses. A third group was given written materials but had no other help supplied by their teachers. A fourth group had both written instructions and oral feedback. The GS 100 class, referred to as the fifth group in the Forum Project report, had both oral and written feedback with additional time for training because that class was not obligated to any other instructional content.

As one might expect, the ability to capture significant detail increased with amount of time and teacher interest in the experiment. Thus, groups one and two showed little gain over the semester, group three showed medium gain, group four showed high gain, and group five showed extremely high gain. In group three, one teacher, although she gave only written materials, took intense personal interest in the project and gave highly detailed written materials to the students. That teacher's group gained almost as much as group four, which had received both oral and written feedback.

Discussion and recommendations

Gong learning and teaching was introduced to Brigham Young University in an inservice teacher training format but was adapted to a direct student training program for purposes of these studies. Three training formats were devised, one in an ongoing study skills class, one as an adjunct to freshman reading and writing, and one as a separate experimental class devoted solely to teaching Gong learning/teaching. All three formats showed positive results in training students to learn by using Gong techniques. It is possible to generalize from the results that (1) students can and do learn using the Gong mode'; (2) the more time spent practicing the techniques under supervision, the more adept students become at learning and being able to repeat their learning in detailed teaching. However, in spite of the demonstrated power of the process as learning, students resent being *required* to go through the rigorous, time-consuming Gong four-fold experience cycles.

Beyond the three generalizations made above, one can speculate many additional benefits from the Gong learning technique. Unfortunately, the studies summarized were not done with sufficient rigor to pit control groups against experimentals. Consequently, the relative advantages of the Gong learning paradigm were not demonstrated. Even so, related anecdotal evidence indicates that the model provides (1) a powerful paradigm for learning, (2) a means for expanding learning beyond arbitrary classroom learning boundaries, and (3) a means of encouraging learning to continue beyond the artificial cutoff point of class completion. Further rigorous experimental study needs to be pursued, however, before Gong learning/teaching can be

viewed as a serious model for learning. Questions that need to be answered are suggested below:

1. To what extent is the Gong model a learning/teaching technique that is transferrable from campus to campus, classroom to classroom, or student to student?
2. What is the relationship of the Gong learning/teaching model to other, more conventional study skills?
3. To what extent is the Gong learning/teaching model universally applicable to content areas? A study at a university where Gong learning/teaching is introduced to students but not to teachers would help answer many questions of universal content application.
4. The final question of this discussion, asks to what extent is learning/teaching a feasible approach to content mastery on any campus or in any formal school setting. The best use of Gong learning/teaching may be in informal settings rather than formal settings. In a typical semester a student is likely to have from four to seven classes with twelve to twenty hours of lecture per week. If one truly believes that learning is best done by pairing learning with teaching, one must conceivably double the learning time requirement because, for everything learned, something must also be taught. Such an approach to learning may be entirely feasible and desirable in home, church, and community, but in school such techniques may be feasible only for the most interesting, important, or crucial segments of learning within the school setting.

The author's experience with Gong learning/teaching has been, for the most part, positive and rewarding. For this reason, the author will continue using the model, but with caution and experimentation. Additional study may further corroborate the power of the technique as well as provide direction for adaptation to traditional study techniques to enhance learning in many content areas.

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SPECIFIC VOCABULARY NEEDS OF ACADEMIC DISCIPLINES

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The role of vocabulary development in reading has changed in an interesting fashion over the past hundred and fifty years. Authors of early materials intended to teach the reading process as well as to furnish the reader with information necessary to function in the world and gave little thought to word control. Primary consideration was given to content. The best (and best known) example of this trend was the *McGuffey Eclectic Reader*, which first appeared in 1836.[7]

But as educational theory changed, so did the approach to vocabulary in reading. Students were taught to read by using strictly controlled vocabularies and were advanced carefully along an established continuum until they had mastered a sufficient number of words and word analysis skills to "unlock any text presented."[11] A remnant of this approach at the elementary level is the 220-word Dolch list.

More recently developed theories see vocabulary development as dependent upon the reader's familiarity with the subject matter and his preexisting oral language.[4]. Vocabularly, then, need not be strictly controlled as long as it is representative of the language patterns possessed by the reader and is concerned with events and ideas with which he is acquainted. Once again, content is an essential element, although now the reader controls the material through his past experience rather than being controlled by its didactic message.

Theoretical difference aside, the demands on the student reader are real and awesome. With an estimated 600,000 words in the English language, students must progress from the average 2,000 to 3,000 word vocabulary they have at school entry to a use vocabulary of approximately 30,000 words when they exit college. The sooner they develop their expanded vocabulary the better they will function in school, and the more specific the vocabulary is to the various academic disciplines the better the mastery of those disciplines will be. Knowledge of words leads students to concepts and helps them display their knowledge.

Traditionally, vocabulary control to lead students to this desired level of success has been external. Glossaries (word lists at beginning levels) are supplied by experts in the fields, and students are expected to learn the words. Often pre-and post-tests are administered to measure gains. The approach is summarized, "we know what you need to know." Despite suggestions from educators[5], textbooks use a similiar approach with the material and format responsive to the needs of the disciplines rather than to the needs of the readers. Rarely has the approach to vocabulary development been internal or student-centered. One exception was the student-centered teaching of Sylvia Ashton-Warner[1], but even those who heeded her message applied it only to young learners.

All learners, of course, are "young learners" when they are faced with new material. If it is too different from any experience the students have had or any knowledge they have previously acquired, they will learn it with difficulty, if they learn it at all. To be most efficient, students must expand their knowledge, formulate their concepts, develop their vocabulary in a way that is unique to their own needs. Pauk[8] refers to this unique void as the "twilight zone."

Within the twilight zone are those words that students often encounter but do not know. With minimal effort, these words can become part of their recognition vocabulary since meanings will be continually reinforced. However, beyond this gray area would be the dark: those words which are seen or heard so seldom that trying to learn them is futile. But as learners focus on their own gray areas, the areas gradually become bright, i.e. known, and learners are free to concentrate on other gray areas.

Research on vocabulary of academic disciplines

There have been very few attempts to research the vocabulary of the various academic disciplines.[2,3,10] Although many disciplines have developed dictionaries of subject terms, no large scale attempts have been made to identify the core vocabulary from the textual material in postsecondary education in spite of the growing body of research in the areas of textual analysis and textual structure.[5,9]

Many reading programs have developed courses in vocabulary development which include components such as vocabulary in business, humanities, science, etc., even though the relevance and/or transfer effect have not been verified. In addition, most of the current vocabulary textbooks seem to emphasize a structural analysis approach to vocabulary, but when these books actually include references to various academic areas, these references are haphazard without a rationale for their inclusion in the text(s).

Process to determine relevant vocabulary

A process which epitomizes the learning that takes place in the personally experienced gray area utilizes no predetermined word lists, no pre- and

post-tests, no programmed text. Words are selected by students from material, both written and spoken, in the academic areas they are studying. Those words are recorded in the original context, given dictionary definitions, and reused in a student created context. Finally, several words are combined into an essay to permit juxtaposition of related concepts. All students work on words that they need for their personal achievement in academic areas they are studying. As they focus on the meanings of the words they practice writing out their ideas concerning the field. Whether their essays are long or short depends upon the words selected and the constraints of the discipline. For example, geology students could write short essays containing numerous specific words referring to plate tectonic theory while philosophy students would require more lengthy essays to use the vocabulary specific to the philosophy of Jean Paul Sartre. All students select the words they need to know and write what they need to say to amplify their topics.

The responsibility of the teacher in such an individualized program is to encourage and to guide the students into those areas which will be most useful, to provide a format for recording selected material and to supply feedback on the written work. While reading teachers cannot hope to be expert in each academic area, they can still supply sufficient feedback to improve the students' vocabulary and writing skills: words must be used as they are defined; sentences must be grammatically correct; paragraphs must contain main ideas and supporting details.

One serendipitous reward resulting from this method is the often expressed gratitude of the students. Learning which is personalized is meaningful, and gains are noticeable. In addition, both the specific learning and the learning process are transferable to other areas. Work in the gray areas can make life bright for student and teacher alike.

Such a process for collecting relevant discipline vocabulary was developed at California State University, Fullerton where approximately 600 students enroll in developmental (not remedial) vocabulary courses each semester. These students select words that they need to internalize from their various academic areas. These data now include roughly 3,000 entries, which have been coded and categorized according to reason for selection, major field of study, year in school and age.

Results of data collection

This preliminary study in the area of descriptive research[6] has resulted in the identification of relevant academic discipline vocabulary for majors on the California State University, Fullerton, campus. The fields of Business Administration, Economics, Communications, Human Services, Criminal Justice and Political Science were the areas most frequently identified by students. Examples of student-generated vocabulary from these disciplines are as follows:

BUSINESS ADMINISTRATION
analog
artifice
abstruse
aggregate
consolidate
devaluate
diligent
demarcation
debenture
margin
Malthusian
pathogenic
parity
pervasive
pecuniary

COMMUNICATIONS
collotype
chromatic
collodion
heliography
postvisualization
parallax
photogram

ART
corporeality
megalithic
monochromatic
pejorative
paladin
puerile
paroxysm

HUMAN SERVICES
catharsis
catatonia
coercive
cognitive
contingency
conceptualizations
dysfunction
diastase
mania
mitosis
psychosis
paradigms
phenomenological

MATH
composite
corollary
converge
conditional
domain
divergence
heuristic
parametric
permutation

PHYSICS
coefficient
component
distortion
dynamics
heliocentric
magnitude
momentum

CRIMINAL JUSTICE
adversary
affidavits
allocution
capricious
delineate
disparity
denigrate
prowess
prima facie
promulgate

ANTHROPOLOGY
caste
chieftains
cuneiform
cannibalism
commercialization
dowries
matrilineal
monogenesis
unilinear

POLITICAL SCIENCE
capitulation
cataclysm
despotism
hegemony
moratorium
machination
perdition
paternalism

Now that the process and computer program have been developed and refined, an additional 5,000 entries are available to be evaluated. This preliminary investigation has yielded a future direction for determining relevant vocabulary of academic disciplines.

Implementation in programs or learning centers

This information provides not only a myriad of suggestions for the direction of future textbooks in vocabulary development and reading at the postsecondary level, but also additional references for immediate classroom use. Ways to utilize these data include academic discipline study groups designed to reinforce the identification and contextual analysis of words. Students who engage in self-selected vocabulary activities will have this as an additional resource. Campus specific dictionaries can be developed for each discipline and made available for all students in the campus bookstore. Adjunct courses related to these disciplines can utilize the data in their study groups and with the adjunct faculty. Learning centers and/or reading programs can provide these lists as services to departments who indicate an interest. Lastly, they can provide the initial step for new research in reading and learning related to academic disciplines in postsecondary education.

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SURVIVAL SKILLS IN A COMMUNITY COLLEGE

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The goal of the survival skills project at Columbia College was to develop a program of individualized instruction in the basic academic skills of reading, writing, and mathematics using exercises dealing with daily living. During the course of the project, we developed five modules. Their subjects dealt with health and safety, the community, managing money, consumer problems and the job.

The survival skills program

The problem is that although the existing programs serve most of the students reasonably well, there are increasing numbers of students who require more practical lessons applicable to their daily experiences. This program is designed to help students with learning disabilities, re-entry students, CETA students, adults requiring literacy skills development, students with English as a second language, and the so-called traditional student on occasion.

The proposal for this project was approved by the state, and received funding for writing and printing our five survival modules. My instructional aides and I — with the use of one outside consultant — developed and wrote the five survival skills books. Another student illustrated them, and another did the typing. The college printed the books.

Our survival skills program consisted of the following five modules:

1. Your Health. This included the topics of first aid, safety, smoking and drinking, drug abuse, nutrition, pregnancy and birth control, finding and visiting a doctor, and exercise and life expectancy.
2. Your Community. This module looked at the various levels of government, from the local to the national. It covered community services, from welfare and food stamps to transportation and drivers licenses. It discussed the laws and court system, and legal problems of the average citizen.

3. Your Money. Topics in this unit covered budget planning, banking, credit and finance charges, taxes and tax problems, and insurance.
4. You as a Consumer. This module dealt with the problems of finding a place to live, renting, buying a house, buying a car, reading newspaper ads, shopping (from groceries to door-to-door sales), consumer problems, and where to get help with them.
5. Your Job. This book handled assessment of personal interest and assets, looking for a job, how to interview for and get the job, and how to hold a job after getting it.

The books are written at about fifth grade reading level difficulty. They are composed of short reading passages, each followed by an activity. These activities involve reading comprehension questions, spelling, simple math, and English and writing exercises. The books are consumable, with space for the written activities right in each book. Answer keys are at the end of each book.

The stated philosophy of our college is probably similar to that of many other community colleges. It includes words like "dedicated to the worth and dignity of each student... responsibility to the student's needs, desires and aspirations...flexibility in meeting student needs." I want to point out that the philosophy of the college as a whole and its learning skills center are one and the same. This philosophy isn't just something that sounds inspiring on paper. In the skills center, we practice it with every student every day of the year. The survival skills program has added another dimension to our ability to do this.

With Proposition 13, our budget for supplies and materials was completely eliminated, so in order to stay in business, we had to have something for our students, and with no money to buy other programs, we had to make up our own. We're getting more skilled at this, as a matter of our own survival.

Prerequisites for a survival skills program

To best utilize a survival skills program, you have to know the population you will be serving. Look at your students and determine their needs, their intellectual abilities, their ages, their previous schooling or lack of it, their physical and mental handicaps, if any, and other factors like these. What programs do you already offer to address these problems in your school? Do you correlate your reading, math, vocabulary and spelling with other programs such as business, health professions, or even diesel mechanics? The skills center is responsible for helping students to survive in these programs, and it can't do it without involving the other departments. This involvement also builds a better relationship between the skills center and the rest of the faculty. A good skills center should be able to support and supplement every other program in the school.

I am very fortunate at Columbia to have exceptional personnel in the instructional aides who work with me. My aides are intelligent, well-qualified, and probably more important than anything else, they are interested in people. And people are our stock in trade. A good skills center needs personnel who are familiar with counseling techniques. We must realize that we are an educational institution, but sometimes before we can educate, we must help our students with social or emotional problems, or at least listen. Skills center personnel must be familiar with and committed to individualized instruction, because no two students have exactly the same problem. And your personnel must be willing to work, because there is always a lot of that.

It would be impossible to run a good survival program without administrative support. The president of our college describes our skills center somewhat poetically as "the heartbeat of the college." If your president and other administrators do not put much value on your skills center, then I would suggest that you work awfully hard at convincing them that you are vital to the survival of the community college. They can't live up to their high-sounding philosophies without you and, of course, your skills center can't survive without their support.

Physical surroundings are important. Our skills center is as pleasant and relaxed as we can make it. We even supply coffee, which is free — and probably worth exactly that much. But students come in for it, and they come in for help. The ideal location is to be near the center of activity. You cannot be isolated. You have to be where the students are. We are located near the library, the business and admission offices, and right over the cafeteria. Because the survival students vary so greatly in interest and ability, there must be space provided for individual tutoring and for small group instruction. We are currently lacking in both of these. My office is constantly being used for both.

Instruction, of course, must be open-entry open-exit, success oriented, providing for individual differences, flexible, with tutoring available, using all the various teaching techniques, be related to all the other disciplines, and relevant to the community and to the needs of the student.

Your materials must be widely varied. You are a drug store, dispensing to each student. Self made instructional materials have a valuable place in the skills program. Materials suggested by or developed with the help of other faculty members will also make your program more relevant, and will improve your relationship with the rest of the school. Again, it's a matter of mutual survival. To function well as a skills center, you need the support of the rest of the school, and they need you.

Testing is one problem that irritates me. I believe that testing is often overused and abused in the skills center. Most students do not need a battery of tests to tell them what their problem is, and many are not emotionally equipped to handle these tests. If I ask a student what 9 times 7 is, and he answers, "I don't know," I don't need a test to tell me that he can't multiply

whole numbers. Or if he says he can't read, should I give him a reading test to prove it? There is a place for testing, of course, but we in the skills business need to individualize our appraisal and assessment techniques just as much as we do our methods of instruction.

How do we grade our students? Are grades necessary? These questions are often puzzled over. We give grades in our program, and the grade is based on the student's own progress, comparing where the student started to where the student is at the end of the program. Our classes do carry college credit, which is figured in the student's grade point average, but is non-transferrable. It logically follows: if our programs have value and importance, they are worthy.

Conclusion

As with most of you, I feel proud to have been able to provide a second chance (or third, or fourth) for many students. This has varied from teaching a student to write his name and address, to speak English, write a job resume, understand the complexities of modern life just a little bit better, or succeed in another class, or to get his high school diploma equivalent, or to graduate with that important AA degree. To paraphrase that famous inscription on the Statue of Liberty — "Give me your handicapped, your non-English speaking, your disadvantaged, your struggling masses, eager to achieve — and we will break our necks trying to help them."

College has changed considerably from the time many of us went there. Can you remember back to when only the upper ten percent of the high school graduating class, or only those with money and social position went to college? Neither can I, but it wasn't that long ago, and the change-over to "college has something for everyone" has largely been instituted by the community colleges. However, when the lower third of the high school class, or the senior citizen, or the non-high school graduate entered college, new techniques and new programs in teaching and counseling had to be developed to help these people. The learning skills center evolved and became the survival center for many of these students, and the vehicle by which to help many more who would have dropped out or barely gotten by in previous times. Every student is unique. Every student is valuable. Every student has potential, and it is our responsibility as skills center instructors to help develop this potential.

DIAGNOSIS-RELATED INTERVIEWING SKILLS FOR LEARNING ASSISTANCE PRACTITIONERS: A TRAINING MODEL

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The following pages contain a condensation of a training model with suggestions for practitioners who want to improve their communication skills in order to become more effective as facilitators. Research has shown these skills to be important aids in the initial diagnosis process as well as in the ongoing helping relationship.[1]

The underlying philosophy of this model is that personal qualities of the practitioner can be as significant for the helping process as the methods employed. A quality of major importance is the practitioner's attitude toward students. The practitioner who genuinely respects and values each student as a worthy individual will be able to convey the concern, support, and encouragement which facilitate growth.[2]

These attributes combined with comprehension and use of the following fundamental skills will enhance clear, accurate, *effective* communication. Both discussion and role-play exercises are recommended, and examples for modeling and training exercises deleted in this paper are presented in the original model.

Attending

Attending, or effectively being with the person you are interviewing, helps:

— Encourage the student to bring forth information useful for diagnosis,
— Enable you to accurately perceive what the student is presenting, and
— Build the trust that is necessary for a helping relationship to develop.

Effective *attending* is paying attention to the student and being aware of student concern. It includes noticing the following:

1. *Explicit content* — given through what the student is saying.

2. *Implicit content* — revealed through such things as body language and verbal cues (choice of words, voice quality, rapidity of speech, loudness).

It is important to *demonstrate* your attentiveness physically in order to maximize rapport with the student. Attending behavior is also a powerful reinforcer, and can be used to help elicit desired behaviors. The comfort level of the student must be considered at all times. Physical demonstrations of attentiveness include the following:

1. *Spatial relations.* Your spatial format can be set so that the student can determine how much physical distance is between you. Allowing the student an "escape route" can help reduce anxiety.
2. *Physical posture.* Facing the student squarely, leaning toward the student, and maintaining eye contact are maximal demonstrations of attention. However, these should be modified depending on the observed comfort level of the student. Sitting diagonally and adopting a fairly relaxed posture can help put an anxious student at ease. Remember, too, that norms for such things as eye contact and psychological space vary across cultures.
3. *Facial and verbal indications.* Nodding, saying "mmhm" and "mm" can encourage elaboration of what the student is presenting. In contrast, frowning while concentrating may be interpreted by the student as threatening.

Perception-checking/paraphrasing

Checking your perception of what the student is saying can help you achieve the following:

1. Make sure your perceptions are accurate;
2. Let the student know that you are listening and that you care about understanding what is being said; and
3. increase the student's own understanding of what the student is trying to say.

One way to perception check is to use *paraphrasing. Paraphrasing* is restating the student's message in an alternate way. The restatement may simply reflect the student's explicit verbal content, or it may include a synthesis of explicit and implicit messages. A concise, summative paraphrase can be used to tie together a series of scattered ideas. It is important to present your paraphrasing in a tentative way, followed by the student's confirmation or denial:

Student — I really studied for that math exam and I still blew it.
Interviewer — You're discouraged because all that studying didn't seem to pay off?

Open and closed questions

Consciously choosing the form your questions take when interviewing can help produce the effects you desire.

Open Questions are those that do not specify exact length or content of answers. They encourage longer, more individualized answers. Use them when you want to elicit information, guided and limited by the student himself.

Closed Questions ask for yes, no, or other definite answers. They are useful for getting factual information efficiently, and for firming commitments.

Open: How are you doing with your biology class?
Closed: Are you having any trouble with your biology class?

Concreteness and immediacy

Accurate diagnosis is made possible in part by the interviewer's ability to promote communication that is clear, specific, related to the student's present condition.

Concreteness refers to speaking in specifics rather than in generalities. Encouraging the student to say "I . . ." instead of the indefinite, "You. . . ," "They . . . ," or "It . . ." encourages clarity and ownership of statements. Focusing on specific behaviors enables action.

Immediacy refers to focusing on the present implications of what is being discussed, so that solutions may be found.

Student: My professor isn't very clear.
Interviewer: In what way? (concreteness)
Student: I can't follow the concept of genetics as she presented it.
Interviewer: What specifically would you like to do about that now? (concreteness and immediacy)

Feedback

Describing to another your perception of and reaction to that person's behavior is called *feedback*. Feedback provides helpful information that may be used to guide future behavior. Feedback will be more clearly heard and understood when received non-defensively. Guidelines for constructive, non-threatening feedback include the following:

1. *Focus feedback on specific, observable behavior* rather than on general statements about the person. It is especially important when offering critical feedback to clearly describe what the person did or is doing (and therefore can do differently in the future), instead of commenting on qualities of the person (which may be unchangeable).
2. *Remember that it is the receiver's responsibility to choose whether or not to*

use the feedback, and how to use it. Feedback which if offered as shared ideas or honest requests is more likely to be appreciated and used than feedback which is presented as advice or demands.

3. *Use non-judgmental language.* Describe behavior in terms of "more or less" to indicate a continuum of possibilities, rather than in "either-or" terms. Avoid words like "always, never, must, ought, shouldn't, and can't."
4. *Offer feedback with the receiver's needs in mind, not simply as a "release" for the giver.* This means considering the appropriate time and place for feedback, as well as the amount that would be most helpful to the receiver.
5. *When possible, emphasize the positive.* Many students are poorly motivated, easily discouraged, and all too aware of how many things they do wrong. Positive feedback, encouragement, and praise can do a lot to boost motivation, and are more effective for long-term change than are threats and punishments.

Encouraging student responsibility

> When students perceive that they are free to follow their own goals, most of them invest more of themselves in the effort, work harder, and retain more of what they have learned, than in conventional courses.
>
> — Dr. Carl Rogers, *Freedom to Learn*, 1969.

Helping students accept responsibility for their own academic progress involves guiding them in setting realistic goals, increasing self-motivation, and becoming aware of specific behavioral helps and hindrances to achieving their goals.

It is important to remember as a helping professional, *not* to take responsibility for another's growth or progress — the ultimate responsibility must remain with the individual. Sometimes just clarifying to the student where the responsibility lies is enough to break an overdependence on your authority. Guidelines for further assisting the student in his progress are as follows:

1. Encourage the student to set realistic long-term *goals*, related short-term goals, and implemental steps toward achieving these goals. An "insurmountable task" becomes workable when specified and broken down into small enough steps. Lack of goals can cause motivational problems.
2. Use *assured success* and *successive approximations* in working towards goals. This means setting oneself up to succeed rather than fail, and is accomplished by structuring tasks so that a sense of completion and competency is gained at each step, or successive approximation, along the way. Postponing rewards until the end of a large project (i.e. earning a degree) is rough on motivation. Taking on an excessively large step toward a goal brings the possibility of early failure and discouragement.

3. *Use positive reinforcement*, or rewarding desirable behavior, liberally with your students and teach them to use it themselves. It is especially important with easily discouraged students to focus on what they are doing right and reinforce any positive changes to encourage continuation in that direction. Rewards may be made contingent upon completion of short, time-limited tasks as an aid in getting started on a larger project.
4. Have students *consider consequences*, both positive and negative, of their present courses of action. Like goals, consequences are sometimes overlooked, and may generate consideration of alternative actions.
5. Emphasize *self-motivation* as the most effective long-term way. If students seem to be depending on you to motivate them, *confrontation* may be effective: "How much do you want to change?" Teach students strategies for improving their self-motivation, including goal setting, successive approximation, and use of self-rewards.
6. *Clarifying the difference between intentions and commitments* as expressed in word choice. Saying "I *will* do it" is more powerful as self-suggestion than saying "I will *try* or I *should* do it." Imagining oneself as succeeding or failing often affects the actual outcome.

Conclusion

Practitioners who genuinely respect and value their students as individuals will be able, after some discussion and role-play exercises, to use the suggestions in this training model. These skills will enhance effective communication between facilitator and student.

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DRAINING THE SWAMP WHILE FEEDING THE ALLIGATORS

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Draining the swamp while feeding the alligators is my metaphor for staff training. Effective staff development must achieve long-range personnel growth (draining the swamp) so that staff may become more proficient at working with students while becoming more self-directed and better able to progress upward in the organization. At the same time, the day-to-day problems and successes of the job (feeding the alligators) must be dealt with and, where possible, turned into learning experiences. Twelve ways to drain the swamp and four ways of feeding the alligators comprise the suggestions offered in this paper.

The first item in staff development is a center handbook. All center procedures (for example, student intake methods), expectations, and commonly asked questions should be detailed in the handbook. It should be given to all staff at the time of appointment and time should be set aside to go over its contents soon thereafter. At the time of employment too, new staff should be asked to take common diagnostic tests used in the center and to practice finding materials for students. By experiencing testing themselves, by diagnosing their own test results, and by the mock experience with material selection, new staff can gain sensitivity to problems of students. In fact, staff should be encouraged to spend free time working through center material and tests to see better what problems are possible for students using them.

A further aid to staff development is the establishment of a professional library in the center. Such a library need only include a few professional journals (i.e., *Journal of Reading, Journal of Developmental and Remedial Education, WCRA Proceedings)* and relatively few books in the field. Recommending selected articles or sections from books is usually sufficient to get people to use the library.

Additional elements of effective staff training are center visitations and personal/job development time. Most centers are located within a 100-150 mile radius of other centers. One of the more well appreciated activities in staff development involves making arrangements (frequently reciprocal

ones) to visit a nearby center, filling a car with willing staff members (which never seems hard to do), and heading off for a day of learning. There is usually someone who cannot go with the group and so is able to mind the store for a day, though sometimes center hours do need to be shortened the day of the trip. But the curtailment is worthwhile. In these days of tight budgets when we cannot afford to send all staff members to conventions on a regular basis, the center visit provides an opportunity to get with colleagues, to gain valuable insight into the ways other people handle similar problems, to see new materials, to discuss program modifications, and usually to reinforce confidence in center procedures. All of this can be accomplished for about $10 per person in charges to the center budget, which makes visitation one of the best bargains in staff training available.

A return visit from personnel of the other center also helps in staff development as staff are faced with the necessity of explaining materials and procedures to people who are only marginally aware of them. This process develops a sharper awareness of materials and procedures.

Personal/job development time is a further bargain in staff training. Staff need to develop a wide area of expertise because students have many problems and questions related to the university. Staff can gain skills in areas like basic math, to increase their versatility in aiding students; foreign languages, to better aid ESL students; or even first aid, to prepare for possible health emergencies; or do research in areas as diverse as school requirements or tutor training. At the same time that learning activities of these types provide a break from the normal routine, they add ability to the staff. By insisting that staff members take one or two hours a week from normal job activities, the center director insures that staff have the opportunity for development. The center director must approve development projects. Possibilities may be suggested, but the director should be open to individual suggestions on desired activities.

Development needs to be policed during busy periods because staff are frequently tempted to sit working with students for extra hours instead of pursuing development activities. People need regular reminders that a few hours away from the center will, in the long run, prepare them to give a higher quality of aid to students, and by giving some break from routine, will even make for more effective service to present students.

Set hours for each staff member to work on projects can allow for totally adequate coverage of the center during open hours. Staff members should make reports either orally or in writing to the center director and/or other staff on a monthly basis.

Staff meetings are a critical area both for draining swamps and for feeding alligators. No matter how busy a center is, staff meetings must be fit into the weekly schedule. The optimum meeting time limit seems to be an hour to an hour and a half because attention seems to shift to personal situations in longer meetings, problems which involve small numbers of staff, while others just want to get the meeting over. Meetings should include

a sharing section which should, as far as possible, result in action on problems discussed. Time for this session should be limited so that other meeting activities are not sacrificed. By leaving this activity to end of the meeting, the group can profit from sharing while being encouraged to limit discussion. At the same time, the center director is then free to continue the discussion with individual staff members after the meeting has ended.

Discussion sometimes leads to policy decisions. When this happens, implementation of new policy should be immediate. Nothing encourages new ideas so much as having people see their effective ideas implemented right away. This also helps people grow by seeing themselves as involved in the decision-making process.

Reviews of center materials or of professional articles is a beneficial way to use meeting time. Having each staff member choose a material to review in relation to its use in the center (i.e., a text used to deal with verb form problems) serves as good material evaluation as well as alerts all of the staff to exact content and proper usage. This procedure frequently involves lively interchange on relative text merits.

Sharing of professional articles, in which each staff member takes a turn reading and reporting (no more than two sharings per meeting), provokes awareness of the state of the art and can affect attitude modification. A fixed schedule and selection list pinpoints acceptable readings and due dates. If a record of readings is kept, a notebook which includes a summary of readings completed can be given to new staff to avoid duplication in future years.

Use of resource persons during staff meetings leads to a greater understanding of campus life (financial aid, admissions procedures, etc.), a better knowledge of student problems (academic games, family attitudes), and an awareness of elements of staff behavior toward students. Consider the breadth added to staff understanding by being able to see student problems through the eyes of a psychology professor. Since students seem to come to developmental program staff with all kinds of problems, frequently urgent ones, knowledge of some counseling techniques, of common financial aid difficulties, and of frequent academic problems can make for more effective contacts with students. Meeting with resource persons not only helps staff in making referrals, but also helps people from other areas to better know developmental program staff and to better appreciate their efforts. Staff with special expertise in specific student-related areas (whether from academic background, first-hand experience, or committee assignments) also function as resource persons. Sharing of specialized knowledge thus becomes an important part of staff training.

A different kind of staff meeting is the future planning session held at regular intervals to discuss options for future program development. Beginning with a simple "what if" question, the session encourages full-time staff to explore options and develop scenarios. Not only does this exercise help in planning legitimate proposals for program growth, but it motivates and excites involved staff to think about and project their own future roles.

Another means for development is to take staff to study skill presentations or to orientation sessions given by skilled staff members. This can enable the newer staff to become familiar enough with content and method so that they may be able to perform these duties themselves.

Evaluation also aids in staff development. Staff should rate their own performance yearly. For this purpose, an instrument containing both objective items and an essay question seems appropriate (Figure A). Both staff member and director should rate performance and compare ratings. Strengths can be encouraged and plans made to improve problem areas when director and staff member meet to compare evaluations.

FIGURE A

Evaluation

Rarely		Usually	Almost Always		Doesn't Apply/ Don't Know
1	2	3	4	5	X

____ 1. Seems to have the ability and willingness to help expedite solutions to problems.
____ 2. Attends to details effectively.
____ 3. Judges people perceptively and fairly.
____ 4. Keeps abreast of new developments and innovations.
____ 5. Makes sound decisions.
____ 6. Gets other person's advice prior to making major decisions.
____ 7. Able to resolve or ameliorate human conflicts.
____ 8. Able to appraise situations and problems impartially.
____ 9. Able to appreciate other points of view.
____ 10. Able to work effectively with other staff.
____ 11. Able to work effectively with students.
____ 12. Willing to delegate responsibility in appropriate situations (instruction only).
____ 13. Takes action in an attempt to remedy problems.
____ 14. Is accessible and approachable.
____ 15. Is a hard worker.
____ 16. Maintains confidence.

List areas of main strengths and main weaknesses. Please briefly indicate ways you feel weaknesses may be ameliorated.

Staff evaluation of center performance according to specific guidelines (Figure B) can produce a greater awareness of total staff feelings as well as provide clues for problem-solving. End of semester post-mortems provide an ideal time for working effectively on these evaluations.

FIGURE B

Semester Performance Questionnaire

Please note any of the following areas in which you encountered problems. Be as specific as possible about the nature of the difficulty. If you have suggestions for improving on any of the problem situations listed, please include them.

1. Contract

2. Student performance

3. Modules

4. Specific materials

5. Staffing adequacy

6. Support (instructional and other)

7. General comments

Two other areas of training deserve mention: the retreat and the professional meeting. Cost factors preclude the extensive use of either of these two means. A modified retreat can be staged by gathering all staff together just before a semester begins to discuss assignments and procedures in an all-day session. Such a retreat seems more effective in the fall when staff are fresher and ready for a new learning experience.

Finally, there is the social gathering, which helps staff share and build relationships which, in turn, help people to work together more harmoniously. We regularly schedule social events, usually pot-luck meals, at the end of each semester. Birthdays are also recognized by staff luncheons or shared cakes. All of these occasions help build morale in the workplace.

Feeding the alligators is extremely important since many staff retention problems, intra-staff antagonisms, failures to implement procedures effectively, and health problems can be traced to the flow of students in the center. With new and/or dedicated staff, alligators frequently emerge. Not all gators are bad; immediate problems can spur creativity. Such creativity must be recognized and commended to encourage future efforts. To ensure that both problems and successes are recognized, co-workers are important. Initial working time for new staff should occur when senior staff are present to turn problems into learning situations and to set an example in handling student problems.

Based on observation, informal, *ad hoc* discussions of problems or methods/materials can be initiated. Resourceful attempts at problem-solving can gain on-the-spot praise. In this way, the trainable moment is used to reinforce or to change behavior.

Staff meetings can help in wrestling alligators. These meetings should aiways contain problem-solving discussions in which all staff can aid in working out difficulties proposed by individuals. This procedure emphasizes the importance of staff ideas and feelings. The week's successes can be praised; suggestions can be respectfully heard. The groundwork for future contributions can be laid through encouragement and acceptance.

Finally, there is need to grapple with the gators as they appear. If students are overwhelming dedicated staff, the students will get their way, even if their demands leave no time for bathroom breaks. Telling staff they need breaks is not enough. If student demand is a problem source, students must be firmly told that there is a limit on service availability so that they will understand that center policy, not individual staff, is responsible for limited service time. This, in turn, helps staff avoid guilt for leaving students to take breaks. Dealing with the problem at its source sets a problem-solving example at the same time that it negates a source of staff ineffectiveness or inefficiency.

Feeding the alligators while draining the swamp presents a difficult problem in staff development, one that requires constant attention and a sharp ear if the staff are to grow into even more effective workers with student problems.

DON'T DISCUSS SQ3R WITH STUDENTS, TRAIN THEM TO USE IT!

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A critical issue concerning the adoption of *SQ3R* by students as a study technique may be the pedagogical methods used by reading and study skills instructors to train students in its use. Typically, instruction in the *SQ3R* technique consists merely of an introduction to the steps involved. After reviewing research in the area of study skills, Dansereau, Collins, McDonald, Holley, Garland, Diekroff, and Evans[1] concluded that students need detailed training in a study system. Further, even in the absence of this study, it would seem unreasonable to expect students to translate descriptions of a technique as complex as *SQ3R* into reasonable study strategies and to transfer those strategies to the studying of their textbooks. In order to facilitate a fundamental change in students' study habits, as the adoption of *SQ3R* would seem to require, instruction which involves a review of the procedures that students should use is insufficient. If students are to successfully integrate *SQ3R* into their studying, detailed instruction in the steps of the technique plus a system to monitor students' application of the technique to their textbooks is needed.

In an attempt to provide this detailed training and monitored practice in the use of *SQ3R*, an instructional strategy was developed by the author. This strategy presupposed that simply introducing the steps of a study technique was not sufficient for students to integrate the technique successfully into their regular study habits. Instead the students were given training in the use of a modified version of *SQ3R*, including practice with a content related textbook. This training included extensive interaction between students and a study skills instructor to assure mastery of the steps of the study technique. This instructor also monitored students while they applied the technique to a textbook.

The actual study method in which students received training was a modification of Robinson's *SQ3R* technique. *SQ3R* was modified to be less complex and to place emphasis on a read-recite-review sequence as suggested by Pauk.[2] Although this modification was considered important, of primary

significance was the instructional strategy employed to train students in the use of this study strategy. This paper outlines the modified *SQ3R* study technique called *PSC* (Preview, Study, Check), the instructional strategy to train students in its use, and summarizes preliminary data collected to measure the effectiveness of this training.

PSC study technique

The study technique in which students received training in this study was a modification of *SQ3R*. In the *PSC* system, *SQ3R* was modified to eliminate the question step, as used by Robinson, and to place emphasis on recitation, review of the material read by the use of written notes. Students using this technique *previewed* the chapter to obtain an overview of its contents. Then, students began to *study* by performing the following activities: (a) reading a short segment of the chapter; (b) reciting by writing a summary of the material read without reference to the book; and (c) reviewing the written summary by comparing it to the chapter to be sure that all important ideas were included. The study sequence, read-recite-review, was continued until the chapter was completed. *Check*, the last step in this technique, was used once the chapter was completed to review the full set of summary notes.

The question step, used in Robinson's technique, was modified because it has been the author's experience that students often have difficulty determining what questions to ask. When students are instructed in the use of Robinson's technique, they are often asked to use headings or subheadings to form questions. However, many textbooks are not written so that all the important information in the chapter could be included in an answer from a question constructed from these headings (some textbooks may not even have such headings). In the *PSC* study technique, primary emphasis was placed on the study sequence with closed-book-recitation considered the most crucial step of the study technique. The use of some type of recitation or review has long been recognized as an important element in the retention of material. Pauk[3] emphasized the importance of recitation, especially in the form of written notes. He felt that the effect of the physical activity itself could help in the retention of material. Besides providing the learner with additional rehearsal time which would help him reinforce information, the notes also provided a written summary of the chapter's contents which could be used for later study.

Further, the use of written notes played an important role in the instructional strategy. These notes provided the study skills instructor with a means of determining whether students were placing proper emphasis on the important information contained in the chapters they were studying. In the instructional strategy, the instructor reviewed the notes with the student. This activity allowed the instructor to compare the notes to the textbook from which they were taken and to provide feedback to the student not only on the

mastery of the steps of the study technique, but also on the quality of the notes taken.

Instructional strategy

The *PSC* study technique was used in a class titled "How to Study Your Textbooks" at Metropolitan State College during the Spring Semester 1980. Classes met for one hour each Monday, Wednesday, and Friday over the 15-week semester. The students using this study technique were freshman and sophomore students who were concurrently in a college course which required assignments from a textbook with relatively standard readings (biology or sociology vs. English composition or mathematics). The use of the content area textbook was considered important because it provided relevant practice plus motivation since the book was currently being used in another course which students were taking for credit.

The instructional strategy was divided into two segments: (a) training, and (b) application. During training (three weeks or nine class sessions), instruction in the individual steps of the *PSC* technique occurred, while in application (twelve weeks or 36 class sessions) students applied the *PSC* technique to a content area textbook under the guidance and supervision of an instructor.

During the training sessions, students received instruction in the individual steps of the *PSC* technique. Initially each step was explained and the procedure for using the step reviewed. Students were then given an opportunity to practice the steps of the *PSC* technique by using not only textbook chapters from their current courses, but also supplemental content chapters which the instructor took from a variety of content areas. After the discussion the students were asked to practice the step using these supplemental chapters. For example, after the preview step was described and discussed, the supplemental chapters were distributed. Students previewed each chapter and then wrote a three to four sentence statement which encapsulated the central theme of the chapter. The students then were given an illustrative summary statement written by the instructor for comparison. The supplemental chapters with accompanying illustrative summaries were a significant part of the training session. The chapters provided the students with practice on content material, and the illustrative summaries provided feedback to the students concerning mastery of the steps in the study technique. Several of these chapters were used, and while the students worked on them, the instructor circulated among the students and worked with those who were having difficulty. Once practice with the supplementary chapter was completed, the students practiced the step using a chapter or chapters from their own content area textbook. The instructor once again circulated among the students to see if the step was being used correctly.

A three-step process, therefore, was used in the training sessions: (a) oral discussion; (b) practice with supplemental chapters; and (c) practice with the student's own textbook.

During the application phase, students spent the remaining sessions of the semester studying their content area textbook using the *PSC* technique during class time. During this phase, the students met together but worked individually with the study skills instructor who checked with each student to ensure proper procedures. The students kept all of the notes taken using the *PSC* study technique in logical order in a notebook. During class time the instructor met with students to check over their work and give assistance when needed. Besides working in the three weekly class sessions, students were also required to complete two hours of outside work per week.

Data analysis

In order to assess the effectiveness of the *PSC* instructional strategy, the performance of the *PSC* trained group was compared to a control group of students who were enrolled in a reading skills class at Metropolitan State College during the Spring Semester 1980. A total of 54 students were used in this study, 27 students in each group. All students received either *PSC* training or reading skills training for an entire semester, with the reading skills training including work in vocabulary comprehension, reading rate and study skills. Students in both groups were chosen for this comparison only if they met all the following criteria: (1) freshman or sophomore student; (2) enrolled in at least nine credit hours; (3) enrolled in one three credit hour class which required relatively standard reading assignments, e.g. biology or psychology. Both groups' overall reading performance was measured by pretest-posttest administrations of the paragraph comprehension section of the *McGraw-Hill Basic Skills Reading Test*[4], and performance in the three credit hour class requiring relatively standard reading assignments as measured by the grade received in that course.

In order to assess the performance of the two groups on the *McGraw-Hill* test, a 2×2 Analysis of Variance (treatment groups by test-condition) was computed. The differential performance of the *PSC* and reading skills groups in the three credit hour class was measured using an independent *t*-test. Raw score data were used in the Analysis of Variance and letter grades were converted to numerical values (A = 4, B = 3, etc.) for the *t*-test. Level of significance was set at the .05 level and follow-up pairwise comparisons were made via the WSD procedure.

The results of the treatment groups by test-condition Analysis of Variance indicate a significant main effect for test-condition $F(1.52) = 10.52$; however, the main effect for treatment groups $F(1.52) = 2.47$ and the interaction between the treatment groups and test-condition $F(1.52) = 3.11$ were not significant. Follow-up pairwise comparison indicated that the *PSC* group and the control group made significant pretest to posttest mean gains on the paragraph section of the *McGraw-Hill Basic Skills Reading Test* (18.2 to 22.5 vs. 19.1 to 22.1 respectively). However, these gains were not significantly different from one another. These results indicated that training in either the

PSC technique or in reading skills can significantly affect students' performance on a standardized reading test; however, one was not superior to the other in doing so. It is important to note that empirical support for the assumption of the equivalence of the two groups was provided since the two groups were not significantly different from one another on either pretest or posttest.

The results of the *t*-test on the three credit hour class grade indicated that the mean grade received by the students in the *PSC* group (2.4) was significantly higher than the mean grade received by the control group (1.7). Although students using the *PSC* technique received a mean grade equivalent to a C-plus, the mean grade received by students in the reading skills class was in the C-minus/D-plus range. This could indicate that the reading skills students had difficulty transferring the skills learned in their reading class to their content area textbooks.

In summary, the *PSC* Instructional Strategy used in this study called for detailed instruction and practice in the use of a modified version of *SQ3R*. This strategy produced significant results because it provided four components: (1) mastery of the individual steps of the study technique; (2) use of materials relevant to students' immediate needs; (3) regular study time, five hours a week, over the semester; and (4) time to see that the use of systematic studying will improve students' grades. It is important to state once again that the *PSC* study technique itself is not considered as important as the factors listed above. *SQ3R* or any of its modifications are excellent study systems, and would probably be as effective in producing the results found in this study as the use of *PSC*. But no matter how good a study system is, it has little value unless students incorporate it into their studying. It is one thing for students to listen and follow the explanations of effective study habits, and another for these habits to be used outside the classroom. If students are to successfully integrate *SQ3R*-type study systems into their studying, an instructional procedure similar to those outlined in this paper must be used.

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LEARNING CENTER COURSES FOR FACULTY AND STAFF: READING, WRITING, AND TIME MANAGEMENT

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The core of the Learning Assistance Center (LAC) at Stanford University, since its beginning in 1972, has always been its undergraduate program: courses in reading, writing, study skills, tutoring and peer counseling, and a staff of tutors ready to help undergraduates in difficult academic subjects. With the designing of the first reading course for faculty and staff in 1975, however, the Center has branched out to include some additional activities: a tutoring program for graduate students, writing courses for foreign graduate students, writing courses at the Law School and, perhaps most interesting of all, a carefully constructed program for faculty and staff which today includes fifteen different courses in four different subject areas: reading, writing, time management and English as a Second Language. The purpose of this paper is to describe these courses, their students and instructors, and the administrative arrangement under which the program operates.

Using as a model the Reading Rate Improvement course for undergraduates, I designed an eight week class especially suited to the reading demands of faculty and staff. This course was the first LAC faculty/staff course. It met twice a week for fifty minutes, enrolled twenty to twenty-five learners, and offered office hours at noon and five o'clock to accomodate new students who were busy working during the day. That course, with minor changes, is the one we offer today to Stanford faculty and staff.

The goal of the Reading Efficiency course is to improve reading speed without loss in comprehension. Students can expect to double their current rate of reading of average difficulty materials and to achieve proficiency in skimming and scanning techniques.

A key to successful reading is the development of flexibility of reading speeds. After completion of the course in Reading Efficiency people will still need to read a poem or a budget statement slowly and carefully, but they will also have several faster rates to help them read and digest the masses of

printed materials we all find in front of us each day both at work and at home. The point is that no one should have only one reading speed.

Consistent, regular practice, both in class and at home, is essential to achieving the course goal of doubling reading speed without loss in comprehension. Therefore, students are expected not to miss class more than twice (and to make up any missed classes) and to keep a "Reading Drills Log" in which they record the required minimum of three half-hour homework practice sessions each week. Texts for the class include Baldridge's *Seven Reading Strategies*[1], Martha Maxwell's *Skimming and Scanning Improvement*[4], Judith Larsen's *Guide to Rapid Reading*[3] and two easy novels of the student's own choice in which to begin to practice the new reading drills introduced in class.

The course begins with reading tests—two 1,000-word passages followed by ten comprehension questions taken from Alton Raygor's *Reading at Efficient Rates*[6] — to determine a student's current reading speed and comprehension. No reading speed score with a corresponding comprehension score below 80% is acceptable. Tests are given throughout the course, particularly at the midpoint and at the end, to monitor the progress a student is making in improving reading efficiency. Classroom drills include the survey question step of SQ3R, rapid perception drills (where students work against time to identify a word or phrase in a series of words or phrases), the nine passage drill (where students read passages of equal length and difficulty in increasingly less time), speed in getting the point (where students work against time crossing out the absurd phrases in paragraphs), timed reading drills (where students skim/read pages in five, ten, fifteen, twenty and thirty seconds each, using their fingers as pacers), a reading machine which flashes lines of print on the wall in rapid succession, and phrase reading (where students learn to read clusters of words rather than one word at a time). Students in the course are expected to come regularly to the LAC lab to use the reading machines and to practice classroom drills at home at least three times a week. The course ends with a final test—which nearly always shows that students have doubled or tripled their reading speeds while maintaining 80% or better comprehension—and suggestions to students for maintaining the gains they have made in class. Because it achieves its goals, this course is very satisfying both to the instructors who teach it and to the faculty and staff who take it.

The second set of courses the Learning Assistance Center has developed for faculty and staff is a set of writing courses. Like the reading course, the writing courses are designed around materials faculty and staff have to deal with every day on their jobs — in this case, memos, reports, letters. In response to demand from faculty and staff, the original program expanded last year into writing courses on two levels, basic and advanced. The first, which will be given four times in 1981-82, is titled "Effective Writing on the Job: Letters, Memos, Minutes," and the second, which will be given twice, is called "Effective Writing for Managers: Proposals, Reports, Articles, Man-

uals." The first course, aimed primarily at secretaries, stresses the kinds of shorter letters and memos that support staff are often called upon to write. It includes a class on effective minutes and a review of the basics of punctuation. The second course, which is designed for administrators, overlaps the first in its general goals, its suggestions for editing techniques, and its tips for memo and letter writing, but it omits the work on punctuation and contains units on working through larger projects such as major reports or articles.

Like most faculty/staff courses, these writing courses will meet at noon next year. Both will follow the same format: eight class meetings and five individual half-hour conferences per student in which the instructor works directly with the student on the memos, letters or reports the student is currently writing. Instructors rely primarily on their own materials in teaching the class but most also use John Trimble's *Writing With Style*[7]. Classes last for eight weeks and enrollment in each one is limited to fifteen students.

The goals for the faculty/staff writing courses are as follows: to convince class participants that working at Stanford does not mean they have to write in an inflated, bureaucratic style; to help people learn to break the writing process down into manageable parts (brainstorming, planning, drafting, editing); to review punctuation and show how it can be used as a tool to aid meaning; to help class members with organization (basically a process of grouping related items under an appropriate heading) and to show how organization can be approached either inductively (you jot down your points and find a meaningful way of putting them together) or deductively (you start with an organizational framework and then fill in the details under headings); to show class participants that they are not alone in fearing or disliking writing — and to convince them that there are things they can do to make it easier on themselves; to increase the writer's sense of audience (so many things fall into place once you consider whom you're writing for, what they'll need to know, what their preconceived notions and feelings about a topic are likely to be); to give students strategies to combat the natural tendency to procrastinate on a writing task (scheduling, planning, breaking the job into small parts, rewarding themselves when they accomplish sections); to give class members specific editing techniques (converting passive constructions to the active voice whenever possible, cutting down on nouns and strengthening verbs, changing abstractions to concrete, imaginable examples, axing unnecessary words); to show students a few useful grammatical constructions (especially subordination) as a means of smoothing out their sentences and showing effectively the relationships among their ideas; to help people eliminate common sentence structure problems (especially parallelism errors and dangling modifiers); and, above all, to get class members to consider writing as a form of human relations — to get them to practice the Golden Rule: "Write unto others as you would have them write unto you." The instructors stress the humanness of writing, that it is basically one person talking to another. To this end, they encourage class participants to use "I," "we," and "you" instead of third-person circumlocutions or abstractions. They

hope students will learn to write more as they would talk to a friend over a cup of coffee.

The individual conferences in the writing classes vary a great deal from student to student and even from session to session with the same teacher and the same student. But, in addition to reinforcing the general goals of the courses, during conferences writing instructors generally seek to accomplish four tasks. First, they try to help class members develop a healthy attitude toward their writing, to help them see it as something they are working on rather than as an extension of their egos. Second, they try to help students relax and develop a sense of confidence in their own work. Third, they try to get students to develop an "ear" for how their writing sounds. Most instructors have students read aloud in conference and comment on how their writing sounds to them. And, fourth, writing instructors try to develop a feeling of self-reliance in their students. Before giving suggestions for revisions, for example, instructors often hold back a few minutes, giving students a chance to think through a valid means of revision themselves.

Participants have responded enthusiastically to the LAC's writing courses for faculty and staff, some calling them the best staff development courses they have taken, and many calling for more sections and more variety in types of writing instruction. In response, in addition to the advanced course for managers outlined above, we have developed a technical writing course for people who work at the Stanford Linear Accelerator Center, and we are in the process of designing a course for people whose first language is not English. The technical writing course is being given for the first time right now, and the ESL course, which will probably include some instruction in speaking as well as writing, is still on the drawing boards. We expect to offer it for the first time next fall and to repeat it again next spring.

The final set of courses the Learning Assistance Center has developed for faculty and staff at Stanford is a group of seminars on Time Management. The seminar description reads, "Is a day simply not long enough? This workshop helps participants discover where their times goes, set up a schedule and establish priorities, and become more effective at accomplishing what they decide to do. The class meets four times (one hour a week), and the instructor meets with each participant for three individual half-hour sessions." Enrollment in each seminar is limited to twenty and the LAC will give seminars next year in the fall, winter and spring quarters.

According to the instructor for the Time Management seminars, this course is designed to help participants identify the ways in which they are wasting their time and to provide them with concrete suggestions for improving their organizational and goal-setting abilities. In order to be effective, the class is geared towards problems both on and off the job. The majority of people who enroll in the Time Management seminars are women and most of these women have families and/or are in school as well as working. Their wish is to be as effective as possible both at work and at home. Therefore, the Time Managment course includes identification of both short- and long-term

goals. This seems to be a particularly popular part of the class, because many of the women complain of vague feelings of dissatisfaction, but have not been able to isolate how they are wasting their time, or what exactly they wish to do. Once they have identified their short- and long-term goals, students in the class focus on isolating a specific task, breaking it down into manageable parts, and scheduling it into a given day or week.

The Time Management seminar meets once a week for four consecutive weeks. This format works well because class members have a month-long period in which to try out various suggestions and to discuss the results in class. Group participation is encouraged because class members often come up with helpful suggestions for each other. In fact, at the end of the fourth session the instructor asks each participant to be a time management counselor for a partner. This technique seems to promote creative problem solving; in discovering they can come up with solutions for others, participants realize they have the ability to solve their own problems.

Topics covered in class include time tracking; creative scheduling; setting A, B and C priorities; identifying high and low energy periods; setting short- and long-term goals; dealing with common time wasters (telephone, meetings, socializing, paper); forming new habits (rewards and punishments, overcoming fear, self-contracts); dealing with procrastination; self-observation and evaluation; time savers (effective writing, flexible reading including methods of scanning and skimming, using waiting time, the art of listening); delegation of tasks; stress management (breathing for relaxation, deep muscle relaxation, instant relaxation drills); special problems at work (managing your boss, working with subordinates, assertive versus aggressive behavior); time management at home (identifying problem areas, work space, filing systems); and review and evaluation of progress. The three suggested readings are: *How to Get Control of Your Time and Your Life* by Alan Lakein[2], *The Time Trap* by R. Alan Mackenzie[4] and *Getting Organized* by Stephanie Winston[8].

Each person enrolled in the Time Management seminar has three individual conferences with the instructor. These conferences are a vital part of the success of the program. Class members bring to their conferences a time tracking sheet on which they have recorded a day's or a week's activities. From this record, learner and instructor can look at problems and discuss possible solutions.

In response to requests from a number of University employees who have enrolled in our Time Management seminars, we plan to institute a series of review classes next year. These would be forums in which basic ideas could be reviewed and new problems aired. We plan to offer a two hour review session several times next year to participants who have taken the Time Management seminar at some earlier time. Review course members would be asked to fill out a questionnaire ahead of time, stating the kinds of problems they are having and the kinds of matters they would like to discuss. The instructor would then go over some of these problems in class, as well as give new goal

identification exercises and review the basic concepts of time management.

Administratively, how does all this work? The core of the Learning Assistance Center at Stanford is its undergraduate program, and I, as Director of the Center, report to the Dean of Undergraduate Studies. To provide for supervision of the Center's faculty/staff program, I receive 10% released time and Personnel, that branch of the University which sponsors courses for staff development, compensates Undergraduate Studies for this time. Under this arrangement, I am responsible for assessing faculty/staff training needs in reading, writing, time management and English as a Second Language, for the development and presentation of courses, and for the administration of the program. This includes finding, hiring and training teachers, supervising their performance, preparing the budget, and coordinating LAC activities with the Staff Development section of Personnel. Personnel compensates directly all the instructors in the program; they are paid as private consultants.

It has been my hope in writing this paper to outline a way that Learning Assistance Centers can reach out beyond their student populations to serve a wider audience, the University's own employees — its faculty and staff. Perhaps some of you, my colleagues at college Learning Centers nationally, will find you wish to expand your activities in this area and will find these suggestions helpful.

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EVALUATION OF LEARNING ASSISTANCE: SOME PRACTICAL SUGGESTIONS

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Common to most definitions of evaluation is the idea that it is a judgment of the worth of something. Discovering the "worth" of a program, material, objective, instructional method, or person is a time-consuming, complicated, and frequently threatening endeavor. The purpose of this paper is to present practical information on how to streamline the process of evaluating learning assistance and reduce its threat.

Purpose of evaluation

To initiate the evaluation process, the purposes of evaluation must be determined. Before any evaluation methodologies or procedures are developed or implemented, the learning assistance administrator should answer a simple question: Why is the evaluation being done and for whom? Some general purposes are:

— To show that the program is being used so that funding will be retained or increased; done for users and administrators
— To find out where the program is strong or weak in order to make necessary improvements; done for the entire educational community
— To show that the service is worthwhile and effective; done for the entire educational community, with special emphasis on the learning assistance profession itself*

* We are the parents of a youthful profession. We must establish credibility with our colleagues in other disciplines, and, to a certain extent, we must prove to ourselves that we are credible. Often, we feel that we are providing an essential service for students because they say we are, but in institutions of high learning where research is often part of the institutional mission we are obligated to participate in that mission. Evaluation which shows that customers of our service are satisfied is one way to demonstrate effectiveness, but we need to substantiate this evidence with more empirical research.

— To understand the needs of the population served and to provide services that meet those needs; done for the entire educational community
— To make effective decisions about the program operation, modification and continuation; done for the entire educational community

The diverse nature of programs, institutions, and people makes this seem like an endless list, but establishing the purpose is prerequisite to all evaluation.

Content of evaluation

A second component of developing an evaluation system focuses on the content and organization of the program. The evaluator must ask, "What is it I need to evaluate?" If a program has comprehensive performance objectives, i.e. objectives for every aspect of the program including evaluation systems, then deciding what to evaluate is relatively easy; one simply bases the evaluation plan on the performance objectives. However, not everyone believes that performance objectives are helpful. In fact, some individuals find them restrictive. The chart below can be used in a situation where there are no written performance objectives. This chart identifies aspects of a learning assistance program that could be evaluated. It was developed by participants of the 1979 and 1980 *WCRA Evaluation Institutes* to be utilized as a checklist or starting point for evaluators with or without written objectives. Please note that the list may not be comprehensive due to the divergent nature of programs that exist and that a program may include any combination of these items.

1.0 PROGRAM ADMINISTRATION
- 1.1 Goals of program reflective of instructional goals
- 1.2 Goals of program reflective of departmental goals
- 1.3 Overall goals and specific objectives (timing, scheduling, services) matched to needs of student population to be served
- 1.4 Cost effectiveness of program
- 1.5 Organization of program
- 1.6 Organization of staff
- 1.7 Staff selection
- 1.8 Staff supervision
- 1.9 Staff communication channels

2.0 PERSONNEL
- 2.1 Ongoing training
- 2.2 Communication skills
- 2.3 Interpersonal skills
- 2.4 Professional development
- 2.5 Interaction with faculty/staff

2.6 Interaction with other in-house staff
2.7 Impact on students
2.8 Delivery techniques/style
2.9 Time management

3.0 MATERIALS
3.1 Variety of materials appropriate for client's needs and program goals
3.2 Appropriate sequence of materials
3.3 Appropriate selection of materials for client's diagnosed affective and cognitive needs
3.4 Appropriate selection for client's preferences
3.5 Staff developed materials

4.0 INSTRUCTION
4.1 Individualized delivery method
4.2 Self-paced delivery method
4.3 Small group delivery method
4.4 Large group delivery method
4.5 Tutorial delivery method
4.6 Competency based delivery method
4.7 Norm based delivery method
4.8 Appropriate selection of method for clients' varied learning styles
4.9 Appropriateness of scheduling

5.0 CLIENTS
5.1 Determination of goals
5.2 Assessment of skill needs
5.3 Assessment of personal needs
5.4 Assessment of learning style
5.5 Assessment of attitude
5.6 Change in learning behavior
5.7 Change in skills
5.8 Change in attitude
5.9 Change in academic record
5.10 Change in expectations
5.11 Long range effectiveness of change
5.12 Accomplishment of goals
5.13 Utility of change
5.14 Transfer of changes to other courses
5.15 Transfer of changes to job skills
5.16 Transfer of changes to life skills

6.0 LEARNING ENVIRONMENT
6.1 Physical arrangement of facility
6.2 Accessability of facility/location

6.3 Accessability of facility/hours open
6.4 Pleasant and positive learning environment within facility

7.0 OUT OF HOUSE*
7.1 Needs assessment
7.2 PR/Advertising
7.3 Programs/Services
7.4 Referral
7.5 Political support

8.0 OVERALL EFFECTIVENESS OF PROGRAM
8.1 Documentation
8.2 Methods of data collection
8.3 Achievement of goals
8.4 Revision after evaluation

* Out of house refers to any service, program or activity that is conducted outside of the actual facility to achieve the goals and objectives of the total learning assistance program.

Methods of evaluation

What is to be evaluated is logically and sequentially followed by "how" to evaluate. Methodology raises its muddled head; evaluations methodologies are as numerous as learning assistance programs. Moreover, quantity is not a problem here, but quality is.[1,2,3,4,5,8,9,16] Making decisions about which methodologies to use and how to use them can be overwhelming, since much is written on general evaluation.[7,10,11,12,14,15] Unfortunately, little is applied to the learning assistance field, and it is necessary to review the voluminous literature of practitioners in other educational fields.

When choosing methodologies, one must keep in mind the purpose of the evaluation and for whom it is going to be completed, since some methodologies will not be respected by or are not appropriate for all audiences. For example, faculties at universities are not typically impressed by learner questionnaire results (although they often use them for the evaluation of their own teaching and for promotion purposes). Administrators appreciate knowing the numbers of clients served, but they also want to know if the service is cost-effective; therefore, complicated cost-benefit analysis studies may be required. Students are impressed with their improved skill levels and might value the results of standardized tests; however, learning center staff members may think such test results are invalid. Almost everyone in post-secondary education wants to know if students stay in school longer or succeed in particular classes as a result of participating in a learning assistance program. Grade point average analysis and pre- and post-test results are typically used for this purpose, but often are not appropriate because there are too many variables beyond the control of the learning assistance program[3,4,8,9,13] affecting these measures.

To help in choosing methodologies, Martha Maxwell's book, *Improving Student Learning Skills* contains an excellent checklist that identifies types of evaluation methodologies to use with various program components. Maxwell's checklist includes qualitative measures such as case studies and observations.[9] In learning assistance centers, where we are constantly dealing with many affective variables, it is very important for practitioners to realize the value of the qualitative methodologies developed by sociologists. Patton's book *Qualitative Evaluation Methods* provides detailed information in this area.[10]

Below are several additional suggestions for selecting and using evaluation methods:

1. Questionnaires and surveys can be informative, but they should be direct, easy to read, and not the sole methodology used. Instruments should be piloted with a small group before they are distributed to a larger population, so that ambiguous items can be identified and changed. (See Berdie[2] for more information.)
2. Qualitative measures such as observation, interviews, and case studies can be used for evaluating the behavior and attitude changes that cannot be demonstrated in controlled GPA analysis and retention studies. The use of these measures requires adequate time, staff and patience. However, an administrator could recruit upperclassmen or graduate students who need to complete research requirements to conduct these studies. (See Patton[10] for more information.)
3. The use of standardized tests to evaluate instruction has been widely criticized.[4,9,11] No space will be used here to further condemn these tests. However, more research is being conducted on the effectiveness of criterion-referenced tests, and they show much promise in an area which heretofore has been an evaluation disaster. (See Popham[11] for more information.)
4. Methodologies which attempt to foster more objective evaluations are readily available for the practitioner. Techniques such as goal free evaluation[14], responsive evaluation[15], and transactional evaluation[12], can be beneficially utilized in situations where evaluation is perceived as threatening. "Goal Free" evaluation employs a subtle interview technique to examine program achievements as well as unintended program effects. "Responsive" evaluation seeks to portray a program rather than judge it through informal observation, interview, and case study; while an important use of "transactional evaluation" is in the area of staff communication, especially when conflict is involved.
5. Data collection is a pervasive responsibility vital to the continuation and documentation of a service. However, one must guard against its becoming so important that it overshadows the actual services provided. Hence, data should be collected with a clear purpose in mind and analyzed accordingly. Procedures for collecting the data should be writ-

ten down. Staff should be well-informed of the purpose behind the data collection, trained to follow the procedures, and spot checked for efficiency. Forms for easy collection of the data should be developed and evaluated periodically to insure that they actually facilitate rather than complicate the data collection. A master form which catalogues all forms and states the purpose, date initiated, location, and evaluation comments should be developed and placed in a notebook with copies of all forms. Additionally, working with the computer science department, institutional research office (if available) and the registrar can facilitate the data collection process. (See Devirian[6] for more information.)

Implementing evaluation

After evaluation methodologies have been determined, actual forms, questionnaires, or instruments must be developed; procedures must be designed and communicated to those involved; and the time sequence for implementing the evaluations must be decided. This is perhaps the most crucial and time consuming stage of the evaluation process, and it must be carefully planned or evaluation results may be invalid, untimely, unavailable, or inaccessible. For example, it is conceivable that it could take longer than anticipated to develop a questionnaire examining student satisfaction of a program, only for it to be ready the last day before final exams. Students would probably be preoccupied with exams, and the return of the questionnaire would be abnormally low.

Evaluation procedures should always be written down for two basic reasons: (1) to reduce the possibility of error and inaccurate results, and (2) to document the evaluation systems so they too can be evaluated from time to time. Limited space does not allow for a full description of the many details that should be remembered when conducting the actual evaluation. However, the Joint Committee for Educational Evaluation has a publication, *Standards for Educational Programs, Projects, and Materials*[7] which specifies guidelines and procedures for completing evaluations.

The final stage of any evaluation, but most importantly of learning assistance evaluation, is the use of the results. Once the data has been collected, it must be analyzed and examined to help both evaluators and administrators make appropriate decisions about program operation, modification, continuation, or deletion. The results should be examined very shortly after they are available; they become outdated quickly. To maintain objectivity, it is advisable to ask colleagues outside of the program to help analyze the data. Finally, records of the decisions that were made should be kept and used for further planning.

Conclusion

Administrators tend to put off evaluation because "judging the worth" of some thing or person is often threatening. "Spur of the moment" evaluations

TABLE I
Evaluation Plan

WHAT?	HOW & WHEN DO I OBTAIN THE NEEDED INFORMATION?	FORM NEEDED?	WHAT INFORMATION DO I HAVE?	WHAT IS MY DECISION?	REPORT TO:
Tutor Performance	1. Develop a checklist of criteria for effective tutoring (July). 2. Measure tutor performance on Likert scale using videotaped simulations (August training pre-test; November training post-test). 3. Observe performance on the job (schedule 5 observations each week of fall semester).	Yes observation notes	Review checklists and notes for each tutor.	Develop specific training sessions for areas of weakness and assign tutors to sessions as needed.	Tutors
Materials	1. Tally # of times materials used from sign out sheets (weekly). 2. Develop, distribute, & tally questionnaire to tutors & clients on value of materials and needs (after mid-terms each semester). 3. Compare results of 1 & 2. 4. Ask professors in appropriate disciplines to review materials using a common form (prior to material purchase).	Yes Yes	X Materials never used and not liked by clients. X Materials never used and not liked by tutors. X Materials used frequently and not liked by clients. X Materials used frequently and liked by clients.	Reevaluate materials which are reviewed negatively; supplement, if necessary. Reorder materials used frequently. Order materials needed but not stocked at all. Develop materials needed and not available for purchase.	Tutors Clients Professors
Client Needs	1. Prepare intake card which includes demographic data & client needs (initial interview). 2. Record needs identified during all contacts w/ clients (ongoing). 3. Tally needs identified by clients (montly). 4. Tally areas actually assisting students (monthly). 5. Compare tallies of 1, 2, 3, 4.	Yes Yes	Helping students in X areas and not in X areas.	Develop and provide additional programs of need, depending on budget. Request additional funds and staff if they can be supported by need studies.	Staff Tutors Administration

will yield similar results. Procrastinating on evaluation can be avoided by making the process visual and writing down the specific tasks to be accomplished. Table I offers an example of a partial plan for evaluating three aspects of a learning assistance center. The "What" column of Table I contains aspects of the program to be evaluated. Objectives could be written here as well. In the "How" and "When" columns, specific tasks of the evaluation methods are listed, and the time when they should be completed is written down. A column labeled "Form Needed" is included to help the practitioner keep track of the number of forms that must be generated and used. "What Information Do I Have?" is a column for recording brief statements or directions about the results (especially if there is too much information to include from the evaluation). The decisions made as a result of the evaluation are recorded in another column, and the individuals or groups who should be informed of the results are listed in the final column.

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VOLUNTEERS—WHO NEEDS THEM?

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A candy striper, an art teacher, a foster grandparent, a drug counselor, a board chairman, a political fundraiser — what do these people have in common? They are all volunteers. They are either providing services which might otherwise not be available, or they are involved in decision-making in the community. Is there also a place for volunteer personnel in the provision of students' services, and specifically in learning assistance centers?

The integration of paid and volunteer personnel in a learning assistance program can both increase the effectiveness of present programs and enable additional services to be provided. Volunteers may be drawn from the student body or the community, or both. The success of a volunteer scheme rests heavily on careful planning and constant evaluation, the success becoming apparent as a symbiotic relationship is built up between staff and volunteers. This brief paper is designed to provide specific how-to's, including sources for further help, and to discuss the implication of volunteer programs in general.

Who needs them?

We are continually being reminded that we live in an age of change. If we take a defensive position, waves of pessimism threaten to engulf us in retrenchment, falling education standards, dehumanization. To take the offensive suggests expanded services, new ways of learning, greater utilization of human resources. A few of the changes now taking place in our society directly point to the availability and the desirability of recruiting volunteer personnel. For instance, students find that they lack work experience when they apply for jobs. Today's society offers a bewildering variety of career opportunities and students may need practical experience to decide if they are oriented towards people or things. Volunteering can help with both work experience and self-evaluation. Mature students may be seeking an opportunity to find their feet in the working community. Retirement from full-time work may release skilled workers for volunteer jobs, which are less demanding though still satisfying. Increasing career opportunities for the handicapped and minorities suggests both a greater demand for learning assis-

tance and a hitherto untapped source of volunteers willing to share their new-found expertise, while serving as the models.

There are three main areas in which volunteers can be used. First, supplemental programs may be possible, using all volunteer workers; *ad hoc* programs are particularly suitable, needing little disruption of permanent staff responsibilities. Second, present procedures may be reshuffled to turn certain aspects of a specific program over to volunteers, in order to release professional staff for more efficient use of their special skills. Third, volunteers may work alongside paid personnel, contributing their special skills to complement those of the existing staff.

Do we really need them?

Before taking the plunge, it is necessary to look at volunteers more closely and to consider some of the factors involved in a decision to implement a volunteer program. But first, the present operation needs to be evaluated with a view to identifying the areas in which additional workers could extend or enrich present services, bearing in mind the three ways in which volunteers might be used.

Volunteers are people who give time, ideas, skills, to something they believe in. A volunteer may be of either sex, any age, any ethnicity, or of any economic or social background, skilled or unskilled. The traditional stereotype of a volunteer as female, middle-aged, white, Anglo-Saxon Protestant, is no longer valid . A volunteer offers time and skills, in exchange for a variety of non-monetary rewards, to be discussed later. A volunteer is not replacing paid staff, nor is the volunteer free labor. A volunteer program involves costs in the form of supervision, recruiting, space and equipment. Volunteers are not pawns to be relegated to odd jobs, but an integral part of the total program, which would be poorer without them.

For volunteers to become an integral part of the total program, it is essential that the existing staff accept them as co-workers. Both paid staff and volunteers must have a clear view of their respective roles and feel comfortable in their relationships with each other. At first, paid workers may feel threatened by volunteers, believing their jobs to be in jeopardy or their power eroded. They may view volunteers as extra work, an unnecessary intrusion into their routine. Unhappy experiences in the past or no experience at all needs to be dealt with before the existing staff can arrive at a consensus that there is a job to be done and the volunteers should do it.

Since several volunteers will be performing work equivalent to that of one paid employee, the tasks of recruitment, training and supervision will multiply accordingly. In order for the system to work smoothly and effectively, one person needs to be responsible for coordinating the volunteer program. The volunteer coordinator may be a regular staff member or a volunteer.

We need them!

Once the decision has been made to expand the staff to include volunteer workers, the general preparations will be similar in many respects to those already in operation for paid employees—job descriptions, training, supervision and evaluation. The following how-to's are intended as a guide to volunteer-relationships for those who are more accustomed to working with paid personnel.

1. Job descriptions should be specific: there must be a g[illegible]ne job to sell when recruiting. Be realistic about how much time is in[illegible]ved. Consider dividing jobs into 2, 4, or 8 hour packets.
2. Recruitment should be broadbased, both in the people approached and the methods for locating them. A face-to-face approach is effective, but bulletin boards and advertisements also help. Consider approaching people who have already become familiar with your services as clients. Utilize the various agencies in town who coordinate volunteer services, e.g. RSVP. Stress the practical benefits, such as work experience.
3. Interviewing should include discussion of the amount of time the volunteer can offer, and whether this time is to be for an extended period, or for a definite period only. Work out a tentative schedule. Remember that volunteers receive no monetary reward—what rewards are they looking for? See that the volunteer leaves the interview with a clear view of the obligations and the rewards.
4. Orientation and training should be flexible and geared to the immediate needs of the volunteer. Introduce the volunteer to the staff and fellow volunteers. Schedules may not allow group training sessions, so much of the training may have to be done on a one-to-one basis and on the job. Remember that the initial few days or weeks are also a trial period during which the volunteer decides whether to continue. There are no pay checks to provide motivation. The pay must come in immediate job satisfaction and acceptance by co-workers.
5. Responsibilities should be spelled out for both volunteers and staff members. Don't take advantage of volunteers. They have the same rights as regular employees but they may be inexperienced in claiming them. Since individual volunteers are working only a small part of the day or week, they need to be kept informed of changes affecting their work, procedural changes, new staff, feedback from evaluations. Be firm about maintaining schedules and build into the hiring procedure the mechanism for firing.
6. On-the-job success for volunteers and paid workers alike depends on support and recognition, on job satisfaction, adequate training and reasonable expectations. How these needs are interpreted for volunteers and paid workers, however, will differ. In lieu of pay checks, increases or paid vacations, volunteers may need public acknowledgement of their

status (parties, publicity, etc.), flexibility in schedules, more frequent feedback on their performance. The quickest way to lose volunteers is for them to see the work as a waste of time. A reward may be in the form of participation in policy planning and decision making, stressing the importance of the volunteer's share in the total program. Promotion applies to volunteers, too. Be prepared to move a volunteer to another job if performance has dropped, or boredom has set in.

7. Evaluation of the volunteer program should be included in the total evaluation program. The volunteers and the paid staff should both be involved, together with those students who are at the receiving end of the services provided. Remember that the turnover of volunteers will be higher than with full-time staff and it is too late to remedy mistakes when they have left the job. Constant two-way communication is particularly important where volunteers work for very few hours in the week and find it difficult to visualize their value to the whole operation.

Who needs whom?

Three groups have been described as participating in the evaluation of the volunteer program—the clients (in this case, students), the paid staff, and the volunteers. Let us examine the advantages to be gained by each of these three groups.

Services to students are enriched by the addition of volunteer programs since existing programs may be improved or supplemented because of the availability of extra staff. The use of volunteers may draw in more clients. Happy workers talk about the services they help to provide. The students using the services come into contact with workers from a wide spectrum of experience. To some extent these volunteers serve as important role models for minority group members or returning students.

For the regular staff, the presence of volunteers offers wider contacts, extra workers and an opportunity for additional services. It also gives them a greater opportunity to concentrate their expertise where it is most needed. Increasing awareness of the alternative motivations which bring volunteers to work may be a learning experience.

The volunteer donates time and skills, acts as a model for students using the services, provides informal publicity, in return for what has been termed "psychological wages." Volunteering used to be considered altruistic; today it is recognized more as an exchange of needs. The prestige-seeking volunteer joins the fund-raising corps, while the idealistic volunteer seeks out VISTA or the Peace Corps. The student volunteer seeks job experience, or relaxation from study; the returning student seeks new directions; the retired volunteer may be seeking contact with people. These special needs should be recognized and respected as legitimate alternatives to economic motivations.

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